APRIL 1959

VOLUME 99
NUMBER 4

American BEE Journal

Dedicated To The Progressive Future Of The Bee Industry

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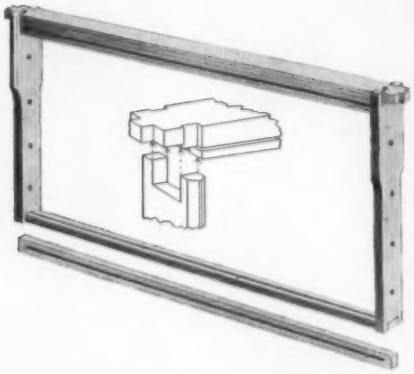

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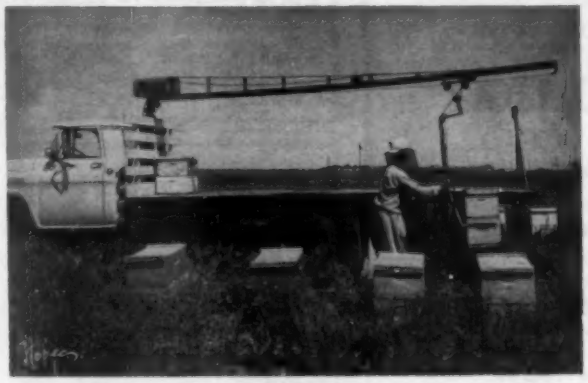

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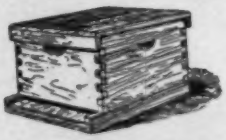

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The American Bee Journal
Hamilton, Illinois

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Swing to Commercial

Comment

Both Commercial and Sideline operators took a back seat in March so the Pollination Swing could take over. The last Swing for either of the two departments was for Sideline in February. For this month it is Commercial. The only difference is that the Sideline Swing occupied only eight pages. Pollination was twelve pages and this time Commercial is twelve pages. If you noted it, the total number of pages since the last Sideline has increased by four and now by eight. If the total pages stays as it is, Sideline will have a much larger Swing in May than it did in February. Meanwhile you Sideliners get some stories in so we can have a lot of fine reading for you.

In this Commercial Swing, there are some fine articles, right to-the-minute. Note particularly Dr. Haydak's bringing pollen substitutes up-to-date and Bunch's plan for big crops. Dunham's cost-cutting work table level strikes a new note in honey house procedure. Killion shows how to produce comb honey with packages and Stewart tones up the yards with queen nucs. There were more but room ran out. So watch the next Commercial Swing.

Here is a mammoth load of 285 colonies of bees being loaded on a semi-trailer for transport to the railroad for a thousand-mile journey across Australia. The full trip covered more than 2000 miles and was probably the longest crop migration ever attempted. (Photo from Australasian Beekeeper)

POLLEN SUBSTITUTES–STILL A CONTROVERSY?[1]

MYKOLA H. HAYDAK
Department of Entomology & Economic Zoology
University of Minnesota, St. Paul 1, Minnesota

Some time ago I received a letter from the editor in which he stated: "I want the most advanced conception of the use of pollen substitutes. So far as my experience goes, I have found the Henry Schaefer's plan of using natural pollen melted from combs and mixed with soybean flour and honey or syrup with sulfa gives immediate response in a colony in egg laying. I have not been able to obtain the same results from pollen supplements or any other kind of substitute."

Beekeepers have always been interested in the question of pollen substitutes. Since 1900 over 170 articles on pollen substitutes have been published in the two leading beekeeping journals in this country. I have had many letters from beekeepers living in different states. Some of them are enthusiastic about the results in feeding pollen substitutes to their bees, others are rather disappointed. Why is the difference?

In our experiments, conducted in screened cages, the bees invariably took the substitute. The bees consuming a well-balanced substitute always started brood rearing at the same time as the control colonies, fed pollen. In our own practical feeding of pollen substitutes to the colonies in the University apiaries the response of the bees was not always the same. Even in the same yard one could find colonies which took the pollen substitute candy from the very start, the others after some hesitation, and some did not take it at all. As a rule, strong colonies take pollen substitutes quite eagerly.

During the summer of 1957 in the University laboratories we tried to compare the value of dried egg yolk, trapped pollen and the bee bread melted from combs by Schaefer's method as supplements to the basic pollen substitute (soybean flour, dried brewers' yeast, dry skim milk

mixture). Small queenright colonies, each consisting of about one and a half pounds of freshly emerged bees which have never eaten pollen, were placed in nuclei kept in cages and fed candy made of pollen substitute supplemented with the above mentioned materials at the 10 per cent level. An additional nucleus was given pollen substitute candy in which the dry skim milk was omitted but fresh milk was used for making sugar solution and fresh egg yolk instead of the dried was added. The brood production of these colonies was followed and recorded.

On the third day after introductions the queens *in all colonies* started egg laying and the bees began brood rearing normally. The number of sealed cells produced by the experimental colonies was as follows: with the dried egg yolk supplement—2880 sealed cells, that with trapped pollen —1747 sealed cells, with Schaefer's bee bread—1757, and on fresh skim milk-fresh egg yolk supplement the nucleus had 1941 sealed cells. It appears therefore that the trapped pollen and the rendered bee bread were of about the same food value, followed next by the fresh milk-fresh egg yolk supplement. The dried egg yolk gave the best results. The bees in all nuclei consumed about the same amount of food. This signifies that if the bees eat pollen substitute they will produce brood. The trouble is that when feeding pollen substitute candy in the apiary, the bees, for some reason, do not start eating the candy after it is given to them. One of the reasons, I think, is that the nurse bees are used to the smell and the taste of the pollen or the bee bread. Pollen substitute candy, having a different aroma, is not attractive to them, because they are not familiar with it. Only when new bees begin to emerge and there is no pollen or bee bread available in the brood nest, they start eating pollen substitute, thus "breaking the ice"; and the colony begins to consume the pollen substitute. The bees will rear brood as long as the pollen substitute is available to them.

For practical purposes a pollen substitute consisting of three parts soybean flour (expeller processed or solvent extracted and heated afterwards with fat content 5-7%), one part dried brewers' yeast (bitter, for animal feeding), and one part of dried skim milk could be recommended. An addition of 10% dried egg yolk and 10% finely ground commercial casein will improve the food value of the mixture. However, the latter two ingredients are rather expensive.

Instead of the dried egg yolk, fresh egg yolks may be added. Use 3-4 fresh egg yolks for each pound of dry pollen substitute. Beat the yolks with a little sugar solution and then mix it into the food when making pollen substitute candy. If one lives on the farm, with plenty of fresh skim milk available, one may use the latter instead of water in preparing sugar solution. Instead of dried egg yolk, 10% pollen can be added by those who practice trapping pollen or rendering it from pollen combs. In localities where it is abundant, cotton seed meal, finely ground or sifted, can replace the whole amount or a part of soybean flour in the formula of pollen substitute.

The most convenient way of feeding pollen substitutes to colonies outside is to offer it dry. Place the substitute

[1]Paper No. 1003 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

in shallow trays (these can be made by cutting down the sides of corrugated paper boxes) and offer it to the bees in a sunny and protected place in the apiary. Such trays should be shielded from rain.

A more economical method of feeding pollen substitute in the apiary is in the form of sugar candy. To make the sugar syrup, dissolve two parts of granulated sugar in one part of hot water by volume. Thoroughly mix one quart of cold sugar syrup with one pound of dry pollen substitute by pouring the liquid into the substitute. However, this formula can be modified. With different brands of ingredients, you may need to use somewhat more or somewhat less sugar solution. The cake should be of such consistency that candy will stay on the top bars of the frames without running down.

The above mixture will provide about 3½ pounds of candy which consists of one pound of dry pollen substitute, about 1½ pounds of sugar, and one pound (pint) of water.

To prevent drying, cover the candy in the container with waxed paper and pat it down so that it will adhere to the surface. Allow to stand overnight so that the liquid will penetrate the dry particles of food. It is then ready for use.

With a wide scraping knife or a hive tool, spread the candy over a piece of waxed paper in a layer about one-quarter to one-half inch thick. Open the hive, smoke away the bees, and place the cake directly over the middle of the cluster on the top bars of the hive so that the waxed paper is on top. Invert the inner cover of the hive to provide space for candy.

Begin by giving about a pound of the candy to each colony. Repeat feeding every 7 to 10 days, increasing or decreasing the amount depending upon the amount consumed in the previous period.

Once started, the pollen substitute (either candy or dry material) should always be available to the bees as long as natural pollen is lacking. Any interruption in the availability of the pollen substitute may cause a setback in brood rearing.

If the bees do not touch the candy substitute, change its consistency. If the bees still do not take the substitute, stop feeding. There may be enough stored pollen in the hive. However, leave the cake on the frames for a couple of weeks; quite often the bees start taking it.

When using pollen substitute for packages, do not give the cake at the time of installation. Wait about a week and then start feeding, placing the food directly over the brood nest.

In computing the amount of food necessary for the apiary, remember that candy made of one pound dry pollen substitute and a quart of 2:1 sugar solution will provide food for a single feeding of 3-4 colonies, depending on their strength. Estimate how many times you are going to feed your colonies (about 8-10 times if you start your feeding in March). Multiply by this number the number of your colonies and divide by 3—this will give you the approximate number of pounds of dry pollen substitute you have to prepare. Make only as much candy at a time as you need for a single feeding of your colonies. Unless placed in a freezer, the candy doesn't keep well in storage. The dry pollen substitute can keep more than a year if stored in tightly covered containers and if kept in a cool place free from insect infestation. If stored over a year, it is advisable, however, to admix fresh dried brewers' yeast in proportions of 3 parts of old pollen substitute and one part of new dried brewers' yeast.

Write about your experience to this journal so other fellow beekeepers can benefit from your trials.

Experimenting with Foundation

by Ernest Harer

The summer of 1958 was a good season for drawing foundation in our part of the San Luis Valley, although the honeyflow was not extensive and some colonies did better than others. I had one colony with which I experimented just to see how much foundation they would draw.

I traded for this colony the previous spring and gave the farmer who was tired of caring for it a 60 pound can of honey. The bees were very dark and, if they were pure, I wish I knew what breed they were. It was a two-body brood chamber ten-frame colony. They had wintered well and still had a full chamber of honey and, in May, I took part of the honey and fed it to other colonies.

About the middle of June I put on a super of foundation, although the flow was not very far along at the time. By the time the season ended, about the middle of August, that colony had drawn four full depth hive bodies of foundation. If our other bees had done as well there would be no concern about making expenses. I run a 400 colony outfit near Center, Colorado. I might say that these bees were very gentle and often I worked them without a veil.

Colorado

About Package Shipments to Canada

BEE BREEDERS are now starting to ship to Canada the hundreds of thousands of packages that come each year. These producers are reminded that shipments should not arrive at their destination on Saturday, Sunday or on a holiday, but pick out a shipping date to avoid this. May 18th, is probably the only holiday to avoid this year.

Shippers who are careless about when they ship may cause their customers to pay out several dollars for Customs clearance, when if bees arrive on other days there is no charge for duty.

J. P. Hodgson
Canadian Beekeepers Council
Convener of Publicity Committee

Using the Soil Bank, Starline Two-Queen System for Enormous Honey Yields

by F. Q. BUNCH

Like most beekeepers we have always strived for a large yield with the least possible amount of labor and expense without sacrificing yield. We have altered our methods from time to time and as our colonies increased we eliminated many procedures which we formerly considered necessary. When the Starline queens were introduced to the beekeeping fraternity we at first made some limited tests and were fully convinced of their superiority and they are now used in most of our outyards. We keep one yard of Caucasian bees for exhibition and comparison purposes and last season we did use some of the new Midnite queens in this yard.

One item which many beekeepers should consider is an abundance of GOOD bee pasture and for years we have been buying sweet clover seed and donating it to farmers who agree to plant it in waste lands and pastures. From the start we found that this paid off in more ways than one. When the Government Soil Bank Program was in operation we continued buying seed for acreages which were within flight distance of our yards and we now have hundreds of acres of sweet clover (white and yellow mixed for a longer flow), alsike and alfalfa which are under contract for five years or longer. A few hundred pounds of sweet clover seed mixed with other grass seeds which the farmer furnishes will seed down enough bee pasture for many colonies of bees and these acreages will reseed and continue to provide a good honey yield for several years. According to our experience the returns from bees will be greater with this type of farmer-beekeeper relations than a paid pollination agreement, however this may not be the case in other areas.

Before our crop is all extracted in the fall we place an order for our queens for the next year. They are ordered in a battery cage of about 25 queens in a cage with about 1½ pounds of bees with no attendants in the queen cages and the queens marked and clipped.

Mrs. Bunch and a future honey customer. This age group receives a free two-ounce sample bottle of honey when they visit the honey house.

In the spring, about the 10th of March, we start feeding pollen to yards which from past experience have shown that they lack it, and also any other yard from which we may wish to make any increase. We follow a procedure quite similar to Henry Schaefer's method of pollen supplement feeding and after we commence feeding we continue until natural pollen is gathered. Colonies so fed must have an abundance of honey as the brood rearing will consume food at a very rapid rate.

Colonies are wintered in two stories, with chaff tray, upper entrance in the inner cover (a Banker device), a contracted bottom entrance and black paper wrap which is fastened with a stapling machine. This wrap is left on the hives until weather is quite warm, and for the yards which are fed pollen the wrap is held in place by a few staples until natural pollen is coming in. We do not like to examine the brood nests or disturb the colonies, other than to feed pollen and insert a frame or two of honey

The center of the Bo yard just before uniting.

Entire width of the Bo yard after uniting. Closest colony crowded for room.

to colonies which are extremely low on stores, until the weather warms up enough so we can work without any danger of chilling the brood.

As soon as warm weather comes we check all colonies for any signs of disease, clip the wings of any supersedure queens which may have been hatched out during the latter part of the previous season. These are also marked with an identifying color so they will not be confused with the shipped in Starline queens which are used in these yards. During this time they are all in two-story hive bodies and the entire hive is tipped over on its back for any examination. The bottom board is loosened of any propolis and put back on its original stand. The bottom body is then separated from the upper body and set back on the bottom board. If brood is in the lower body it is quickly checked and the upper body is set on the telescope cover and given a quick inspection and then after the queen has been found and clipped, if necessary, the unit is placed back in the original position. We do not like to start reversing bodies too early up here in the cold North as it may chill too much brood, and too much manipulation disturbs the bees and makes extra work for the beekeeper. We want plenty of food in all the hives and do not like to let them get down to less than three combs of honey in any hive. We always try to have extra combs of honey to feed and when these are exhausted we feed a sugar syrup but much prefer the natural food as it saves labor.

We have our first queens ordered for arrival here during the last few days of April and the first shipment is used to divide the power houses in each yard. The division is made by borrowing features of Mr. Holzberlein, Mr. Schaefer and Mr. Banker's two-queen systems and the queens are not hunted for at this time. About three frames of brood in all stages of development are taken out of the parent colony of the most powerful units, the bees shaken off in front of the entrance to make sure that the old queen will be in the parent colony on the original stand. If the queen happens to be found while the brood is being removed the queen is simply put below on a frame to one side of the hive and bees from other frames are removed and shaken into the new unit which has been placed on the telescoping cover while the operation is performed. In this case the division screen (double screen) is set on the original parent colony after the empty space is filled with empty brood combs. The entrance for the new unit is located at the back of the hive and a frame of honey and a division board feeder of sugar syrup is added and the new Starline queen is inserted between two frames of brood and the entrance is slightly stuffed with grass to prevent the bees from returning to their old home until some of the brood has hatched out.

When the old queen is not located the same procedure is followed excepting that we shake off all the bees in front of the entrance of the parent colony and place the new unit, minus any bees excepting the unhatched brood, above an excluder. This is to make sure that the old queen is below in the parent colony. A shipped in queen is given to the new unit, the division board feeder filled and the cover placed on the hive. The workers will soon move up to care for the brood above the excluder and equalize the strength of both units better than the average beekeeper can do it in most cases.

The powerful colonies in each yard are taken care of at this first round and the apiary is visited the next morning and the excluders are removed and the permanent screens with back entrances are inserted. I believe Mr. Holzberlein was the first to describe this labor and timesaving idea and we certainly like it. Last year it was my privilege to watch Mr. Banker work several outyards and he did not make this first trip to take care of the stronger colonies but waited until the dandelion flow and then equalized the brood, taking from the stronger and giving to the weaker. This also is a laborsaving feature and saves both time and mileage and we expect to do this with all except the yards which are fed early pollen supplement.

After all the colonies are divided into two-queen units they are checked for queen performance in both units about once in ten days or two weeks. If a queen fails the unit is united by the newspaper method and after things are settled down it may be divided again and another shipped in queen given to the top unit. This helps to hold down swarming fever and the top unit takes advantage of the warmth of the bottom unit which is far superior to making two units on separate stands. All the extra equipment needed is a double screen and a division board feeder and the new queen. As the spring honeyflow comes the most of this nectar will be consumed for brood rearing and when there appears to be any congestion a shallow super is added to any unit which may be in need of room. No queen excluders are used and the supers contain eight shallow frames in a ten-frame super. This wide spacing seems to keep down the queen to some extent but not entirely and some brood which is deposited in the first extracting supers will soon be crowded out and filled with honey as the brood hatches and the main honeyflow arrives.

If the honeyflow materializes and the weather is favorable one should have the honey pouring in, when located by a huge field of "soil bank" sweet clover. About the time the first nectar is collected from the yellow blossom sweet clover we must unite or do something with the top stories on each unit. If increase is desired they can be taken off during the middle of the day and moved to a location in some other outyard. Where this is done the field bees will return to the parent colony and make a power house of a colony and the new unit should fill another body of stores for winter and perhaps make a few supers of surplus honey.

If no increase is desired the colonies are simply united by using the newspaper method and given an extra extracting super or more as may be needed. On the next trip the brood is placed at the bottom and one queen has taken over and the powerful field force will bring in much nectar. Our scale colony brought in 25 to 30 pounds of nectar several days during the height of the honeyflow last year and this was in an area which was not considered a good bee location until we started investing in seed for bee pasture.

A trip by air can be of great value to a beekeeper and especially in rough country where the roads do not follow the section lines. My good wife and I took an air ride over our area last summer just as the sweet clover fields came into bloom and we located two immense fields which were in "soil bank" and which we did not know existed. Needless to say we have these locations taken care of and the increase in our honey crop more than paid for the trip.

Maintenance of a "WORK TABLE LEVEL" When Uncapping Combs of Honey

by W. E. DUNHAM

Department of Entomology
Ohio Agricultural Experiment Station

This is an age of mechanization and commercial beekeeping must meet this challenge as other industries are now doing. Fortunately we are making some progress in this direction.

Few commercial beekeepers are utilizing the "work table level" principle through mechanical means when uncapping frames of honey during the extracting period. Two procedures are commonly followed by beekeepers. The most common one is to remove combs of honey from each successive super in the stack which results in excessive labor and fatigue during a day's work. Another method is to set each super of honey on a platform or stack of supers at a convenient height which amounts to maintaining a "work table level" but at the unwise expenditure of human energy.

Maintenance of a "work table level" through mechanical means when uncapping combs of honey is covered by the author under two main headings, namely: equipment needed and the evaluation of a mechanical aid in terms of labor saved and the increased production resulting from its use.

Equipment for Maintaining a "Work Table Level"

Search was made for equipment that was already manufactured for industrial purposes that might be modified economically by beekeepers for their use. Several types of vertical air lifts were found on the market that are utilized by garages. Modification of such an air lift to meet beekeepers requirements was simple. The horizontal arms on the lift were removed and an iron platform (24 inches long by 20 inches wide) was welded to the angle iron of the lift (Fig. 1). To aid in wheeling the stacks of supers on the platform an

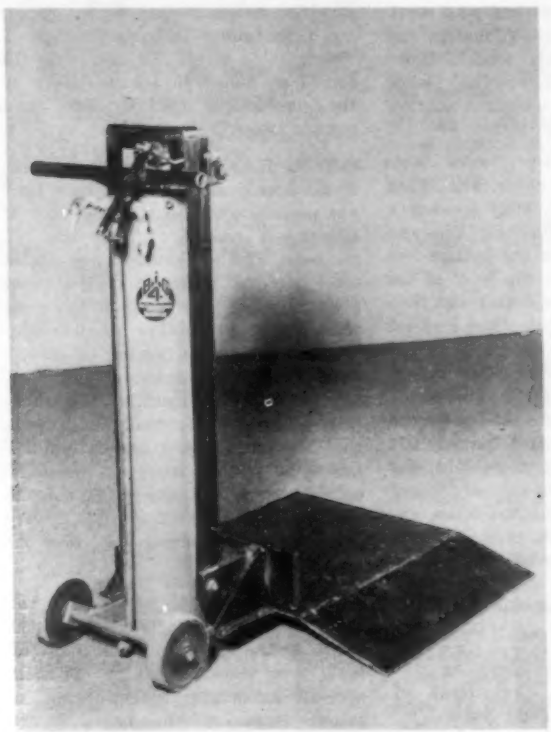

Figure 1. Attachment of the platform and the ramp to the air lift.

Figure 2. A small air compressor to provide operation for the air lift.

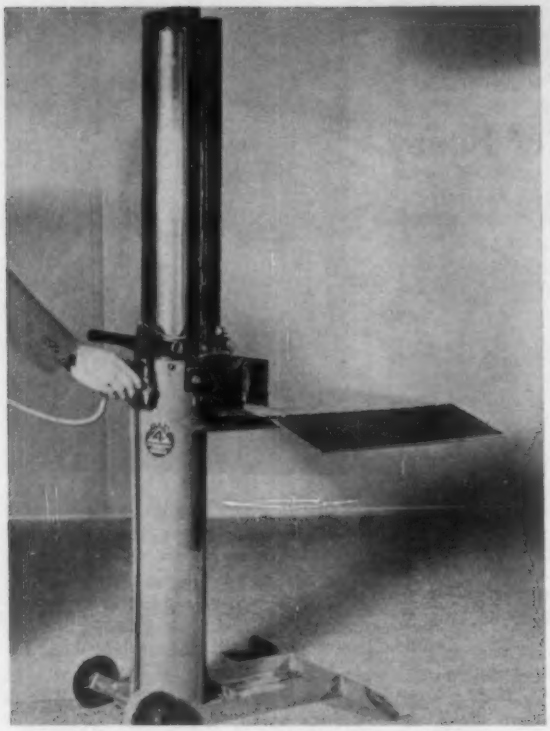

Figure 3. The hand controlled valve forces air into the air chamber to raise the level of the platform.

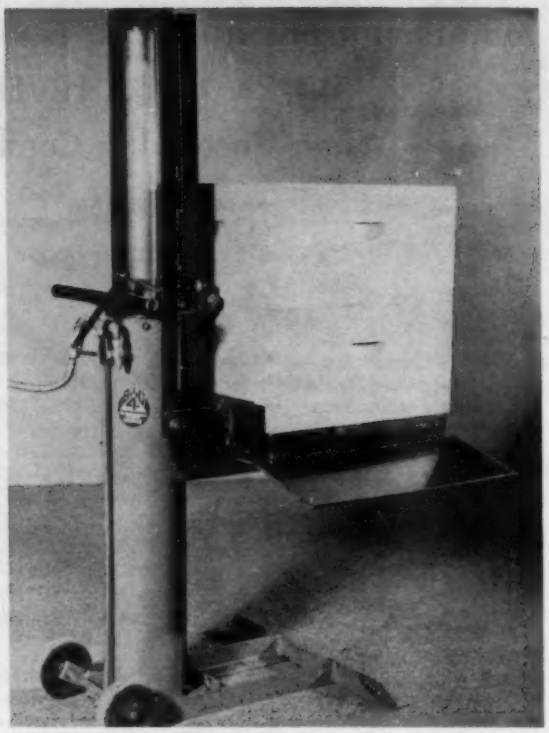

Figure 4. Top super at the best "work table level" for removing combs for uncapping.

iron ramp 9 inches wide was welded to the platform (Fig. 1).

A small air compressor outfit for the operation of the air lift is an easy problem to solve for commercial beekeepers as most of them own one in connection with their power paint spraying outfit. Maintaining forty to sixty pounds of air pressure is adequate for lifting the supers to the "work table level" (Fig. 2).

The operation of the air lift is simple. To raise the platform, air is forced in the air chamber by a hand controlled valve (Fig. 3). The platform is lowered by an air release valve which allows the air to escape from the air chamber. There is no jerkiness in the rising or lowering of the platform whether loaded or unloaded as long as the cylinder of the air lift is lubricated with a thin oil. Work shop tests over an extended period involving a poundage of over 500,000 pounds of honey has demonstrated that the air lift operates smoothly and with no interruptions for repairs.

Evaluation of "Foot Pounds Work" Saved and the Increased Production.*

A comparison of the work involved in uncapping combs of honey by the old method versus the work involved by the mechanical method was measured entirely in terms of "foot pounds work." "Foot pounds work" is defined as the work involved when lifting a one pound weight a vertical distance of one foot.

The calculated ideal "work table level" was when a comb was lifted only 12 inches high, thus leaving a clearance of approximately two and one-half inches below the bottom bar of the frame and the top level of the extracting super. The frame was then swung on a horizontal plane and set in the holders of a mechanical uncapping machine. Although all supers of honey seldom weigh the same, the assumption was made that the supers were identical in weight, namely, 64 pounds. By referring to Table 1, the comparison of "foot pounds work" involved in the old method when uncapping a single stack of supers versus the mechanical method is almost unbelievable. When reaching down to the last super for the combs of honey, 224 "foot pounds work" are involved as compared to 64 pounds when the super is maintained at a "work table level." In removing the combs of honey in the 4 supers by the mechanical method, 320 "foot pounds work" is saved.

Table 2, shows "foot pounds work" on an hourly basis and on an 8 hour day's basis, when an equal number of supers are run through by the two methods. The mechanized work table level method shows that the "foot pounds work" is reduced by more than one-half. Another forcible way of emphasizing the saving of energy expenditure by this labor saving device over the old method is to interpret a day's production. This shows that 160 more supers can be handled and 8800 pounds more honey might be extracted with the same amount of energy as is involved in an average day's production by the old method. (Table 3.)

Many commercial beekeepers will want to know the practical application when installing a mechanical work table level device in terms of their over-all extracting operations. The actual increased poundage of extracted honey will be influenced by

*Acknowledgment for help is due Prof. R. D. Borden, Chm. Dept. of Agric. Engineering, Ohio State University.

a number of factors such as the type of mechanical uncapping machine, the method of handling uncapped combs from the uncapper to the extractors and the number of extractors in use, etc. Work shop tests have been conducted where the extracting equipment involved a Stoller uncapping machine, a Merry-go-round for receiving the uncapped combs and two large radial extractors. The results of the workshop tests are well worth studying carefully (Table 4). Analysis of a day's work shows 43 per cent less foot pounds work per day and 31 per cent more honey extracted per day when maintaining a "work table level" through mechanical means.

TABLE 1.

COMPARISON OF "FOOT POUNDS WORK" BETWEEN STACKS OF SUPERS OF HONEY

	Old Method Supers-Stack No. 1.		Mechanical Method Supers-Stack No. 2.	
S	64.00	lbs.	64.00	lbs.
S	117.31	lbs.	64.00	lbs.
S	170.62	lbs.	64.00	lbs.
S	224.00	lbs.	64.00	lbs.
	575.93	lbs.	256.00	lbs.
	256.00	lbs.		
S	319.93	Foot pounds *work saved* by mechanical method.		

TABLE 2.

PRODUCTION SCHEDULE:—FOOT POUNDS SAVED-HOURLY, DAILY (8 hour day)

	Ft. lbs. work per hour	Ft. lbs. work per day	Approx. lbs. honey extracted per day
Old Method—16 supers	2303.72	18429.76	7040 lbs.
Mechanical Method—16 supers	1024.00	8192.00	7040 lbs.
Foot pounds work saved	1279.72	10237.76	

TABLE 3.

PRODUCTION: Foot Pounds Work per Day by Old Method Interpolated in Terms of Mechanical Method.

	No. Supers per day	Food Pounds Work per day	Approx. Honey Extracted
Old Method	128	18428	7040 lbs.
Mechanical Method	288	18428	15840 lbs.

TABLE 4.

PRODUCTION: Based on Work Shop Tests

	No. Supers per 8 hour day	Foot Pounds work per day	Approx. Honey Extracted Daily
Old Method (16 supers per hour)	128	18428	7040 lbs.
Mechanical Method (21 supers per hour)	168	10496	9240 lbs.
Analysis of Day's work over old method	40 more	7932 less	2200 lbs. more

Per cent *Less Foot Pounds Work per Day* equals 43.04%

Per cent *More Honey Extracted per Day* equals 31.25%

Our tests were run where 4-5 deep supers were stocked over a pallet. A two-wheel grain truck was used to wheel the stock of honey on the shelf of the lift. Where skids are used to stock hive bodies of honey, it would seem that the "ramp" should be extended longer for a more gradual incline. A stove-lifting truck probably would work nicely to transport the stocks of honey. There are other types of lifts for transporting stocks of honey which you are probably more familiar with than I.

So, You Want Information From Here and There

At least Frank Korn of Mountain View, California, wants to learn about beekeeping in his part of the country. He says: "It would be a good thing for beemen out here if the Journal were produced in California. To read about conditions in the snow country just doesn't make sense here in California. There's a lot of nice reading in A.B.J. but why not tell us poor beemen here how to care for bees in our part of the country?"

Well, why not? Mr. Korn represents a lot of folks who want some home news. We have asked for it over and over, particularly from the Northwest, the South and the Southwest. So, get busy you "outlandish" beekeepers and help out.

What Can You Say about Supersedure?

James E. Davis, Jr., Navasota, Texas, contributes some thoughtful ideas about what may cause supersedure and suggests that it might be a good idea to ask other readers to express their opinion about what the causes of supersedure are. So we told Mr. Davis we would keep his comments until other ideas are given. What is your notion about what brings about supersedure?

PACKAGE BEES FOR COMB HONEY

by CARL E. KILLION

For the first 25 years of my beekeeping I never bought or used a package of bees. Somehow I had an idea they were not exactly what I wanted. It must have been about eighteen years ago the decision was made to try a few packages for comb honey. Since that time packages have been purchased sixteen of the eighteen years. Last year we did not try them.

These packages were not too large in numbers but from forty to two hundred. For several years we had the packages arrive here, in central Illinois, about the first of May. Later we pushed the date up to April 15th. The ones received on May 1st in most years did better than the ones received in April. Each of the years when April dates were set for receiving them the crops were smaller. This condition was general and not from the package bees alone. Had one of these years turned out real good we would no doubt recommend packages be received early or to correspond with our date of April 15th.

One year we tried a few four-pound packages for a comparison with the ones with three pounds. These four pounders did an excellent job of building up very quickly. In fact, if we were to depend quite a bit on package bees, we might have the greater part sent to us with four pounds of bees instead of three. If the expected flow was an early one and we were being crowded to have colonies strong, then I am sure all would be of four pounds.

We have never started packages on all frames of foundation. Neither have we started them on all drawn combs. Because all of our brood chambers have only nine frames in them (with a follower board on each side) I do not want to confuse any one when I say we may use four drawn combs and five frames of foundation or vice versa. Some may want to know where the heck is that other frame. Because this article is to deal with package bees for comb honey I will not dwell on the reason for the brood chamber as it is. To describe the merits of this brood chamber would require an article of equal length.

To some of the readers who use hundreds of packages each year,

they should have reason for a chuckle at what I may have to say about installing the package. I am not original in the methods, there are many who have better methods. We get the job done and there is very little loss from drifting or accepting queens, so we like it. If we may choose a time of day we like late evening or even after dark. One year we installed 100 packages in two apiaries by the headlights from our trucks. The results were excellent except I do not like to work with bees after dark.

Our colonies are all placed in pairs, the hives on each hive stand are about six inches apart. The hive stands are about 5 or 6 feet between one another. We remove the two follower boards from each hive and place these between the pair of hives. Our feeders are next to the side of the hive nearest to us for ease in pouring in the syrup. One frame of foundation is placed next to the feeder, then the drawn combs, and remaining frames of foundation on the farthest side. In selecting the drawn combs for each hive body we like to have at least one comb of honey. We are not sure how much pollen may be in the comb or whether there is more honey. Therefore, a pollen cake is given to each package colony. Several times packages have been installed just previous to a few days of bad weather. These pollen cakes are an insurance of a supply regardless of weather.

In ordering our packages we specify that all queens be clipped. Before we start installing the bees we spray the cages a little with water. After prying off the wooden cover the cage is banged upon the ground to knock all the bees down to the bottom of the cage. The syrup can and queen cage are removed, then with a few vigorous shakes of the cage the bees appear to be rolled up more or less like a ball. These are dumped right on the entrance of the hive. After a couple of bumps and shakes only a few bees are left in the cage which is placed about 4 or 5 feet out in front of the hive. The queen cage is now dipped into the can of syrup, the cork or metal screen is pulled from the end and the cage shoved into the entrance, open end first and screen down. Our acceptance of queens by this method has been good.

These package colonies are fed as fast as they use the syrup out of the feeders. It has taken about an average of five feedings per colony to get each one established. Within three or four days the colonies are inspected to see if the queens are laying. Also there is the possibility of drifting. Two or three years we had drifting and had to equalize the colonies.

In this area we expect the main honeyflow to start the first week in June. The records of honeyflows show the starting date is June 7th. This survey covers a forty-seven year period. The package colonies are just nearing their strength to start storing by the first week of the flow. These colonies are about equal in strength to colonies we may have split about May 1st from overwintered colonies. For five years we have had some comparison tests between packages, split colonies and overwintered two-story colonies reduced to single stories at the start of the flow. Each type of colony has its own merits in these tests.

We prefer the overwintered colonies because they have given us considerable more honey than either the packages or split colonies. The overwintered colonies make a little more extra work right at the start of the flow, because we must reduce them to single hives each with most of the

bees. In cutting the colony down to a single hive body we want to find the queen and give her to the hive to be used for producing. We do some sorting of brood combs to make sure the colony for storing has all nine combs of brood. This cutting down is being done at the same time we start hauling bees and it is a real rush time.

I would like to discuss the variation in swarming between the overwintered colonies, split colonies and packages. In most years it is only a few days after the colonies are reduced to single hive bodies when the bees start swarm cells. The split colonies and packages delay their swarming until much later, in most cases around the 4th of July. At this time the colonies have two, three or more supers on them. The inclination to swarm, after super work has advanced so well, is an undesirable feature. In the overwintered colonies swarming starts (in most cases with only one super on) earlier in the flow and is brought under control much earlier.

Years ago we were told by those who had experience with package bees that they would not swarm the first year. "So you get package bees with those young queens and they won't swarm for you," is what we were told. Now that might be true with liquid honey colonies. The owners keep piling on supers or bodies with empty drawn combs and why should bees swarm? Our packages swarmed almost 100%.

Last season was a good example of what overwintered colonies could do. We did not buy any packages, but did have quite a few split colonies. The honeyflow from alsike and yellow sweet started with a bang. There were nine days of good weather and then the rains came. The bulk of our last year's crop came in those nine good days. Our split colonies did not have a chance to store a drop. If packages had been used they would have been about equal in strength to the split colonies. The bees did very little work on regular white sweet clover or the late variety. In normal seasons when bees get to work on alsike, yellow sweet, white sweet and the late Ohio evergreen, both package bees and split colonies do very well.

One thing in favor of package bees, a person can make rapid increase for an expected bumper flow. After the packages have been installed and queens are laying there is very little work to do with them except regular feeding. The same is true with split colonies. One drawback in the use of packages for comb honey is the gamble whether you are going to get bees that will produce quality comb honey. One must always remember it is the bees that put the finish on comb honey. We can only dress it up in a nice package after it leaves the hive.

The ratio of production between overwintered colonies and packages is about 40 per cent more honey in favor of the overwintered colonies. There is a little more work but I believe we get well paid for the extra work.
Illinois

Editorial by Harley K. Kittle, President of the Wyoming State Beekeepers' Association

I DARE YOU!

Although the American Beekeeping Federation convention at Tampa, Florida was very cogenial and smooth running, it left me with a feeling of sadness for I cannot see that anything was accomplished to strengthen the honey market and bring the price of honey to a profitable level for the producer. I am sure many of the members view with misgivings the defeat of the five cent checkoff plan for the promotion of sales of honey. It is impossible to believe that all concerned from producer to retailer would not benefit from a thriving and prosperous industry. No lasting economy was ever built on the doorstep of a decaying industry and with the producers' market what it is today there is little doubt of its degeneracy. The dairy industry lifted itself up, the beef industry refused government subsidies and supports and today stands on its own feet; the Florida citrus growers had to do the same thing. We can do it too. We just need some way to collect the funds necessary to hire the personnel to do the job of national promotion. The groundwork is laid; the personnel is ready. All they need are the cart wheels to carry on the load. It is up to us producers to supply those "cart wheels."

I really felt ashamed for some states at the convention and for some of the members who had so much to say but who had contributed so little. Like one fellow said, " I'm sick and tired of hearing that sour note of 'Where you gonna get the money?' " I felt that way too. Like he said, it is up to the members to get the money. That shouldn't be too difficult. You who are believers just put forth a little time and effort and we can raise the money. I heard of one state that has over 100,000 hives of bees yet paid in less than $100 dues. What kind of peanuts is that??? Whose fault is that??? Why, it is the state association officials' fault. If you don't want to do your duty and work for the benefit of your association then say so and elect someone who will carry the ball. Another state has over 10,000 beekeepers yet pays in only a few dollars. Would it be too much to expect each of those 10,000 to pay a dollar apiece. They probably would if someone would go after it. Don't look at Wyoming man, our shirttail is clean. No other state in the union has contributed so much to the Federation per colony as Wyoming. Just look at the records Mr. Beekeeper.

I, Harley K. Kittle, President, Wyoming State Beekeepers Association, hereby challenge any state in the union to equal the per colony contribution to the National Federation for the year of 1959. For any state with over 30,000 colonies of bees who or which can equal our payment I will eat CROW at the next Federation Convention. Harley K. Kittle, President WSBKA.

I DARE YOU!

THE NUCLEUS IN EVERYDAY BEEKEEPING

by L. R. STEWART

For years we have operated in each of our yards approximately 20% as many nuclei as regular colonies. Because of their many uses we find them not only fascinating but also very useful. Although the two principal uses of the nucleus are to provide an ever-ready, tested young queen and to make up our winter loss we also find them excellent for supplying brood and bees for weak colonies, for drawing foundation, for storing food and as a storage for poor combs.

We have tried various types and sizes of hives for our nuclei but find the little hive that holds five standard Hoffman frames, or four frames and a feeder, the best for our system of beekeeping. The side spacing is a little wider to allow easy, quiet manipulation and the bottom a little deeper to accommodate any good queen cells that might be drawn on the bottom of a frame. The bottom board is nailed on and it has a screened hole in the rear end for ventilation, a hole in the bottom being more private.

We use two types of feeders; the regular division board feeder and one drilled out of a 2"x6" plank that has frame rests and hangs in the hive just like a frame. This feeder will last a long time and never leak, which is very important in the life of a nucleus. The nuc's life begins any time from April on and lasts until the next spring.

During the winter season our little hives are prepared for the following season. We place in each a partially filled comb of honey and pollen, a black comb and two frames of foundation or maybe three of foundation and a feeder. Then we distribute a sufficient number of them to each yard. In May or as early as our regular colonies can spare them we establish a few nuclei in each yard by removing two combs of brood and bees from them (the regular colonies), put them in our little hive and give them a queen from the South. It is important that we give them feed in case they don't have any. Clean honey will do but sugar syrup is better. Even though they have honey it is a good practice to give them some syrup. Close the contracted entrance of the little hive with some grass and by the time

they have it cleaned away they will stay put. There will be times when there are not enough bees on the two combs, in which case we shake in some additional bees from other combs, taking care at all times not to get your queen. Of course we replace the space from which we removed the combs of brood with combs or frames from the nucleus, putting them at the side of the hive in order not to break the brood pattern. To prevent drifting we often make up nuclei in one yard and take them to another.

We continue the establishment of nuclei until about the close of the clover flow; nuclei established later than this may not get strong enough to winter. As before stated the first ones were stocked with southern queens, our drone stock we call them, stock to produce the kind of drones we want to mate queens of our own stock. Then, as swarm and supersedure cells show up (and they do) we start nucs with them providing the parent stock is satisfactory. We believe the swarm cell is the best queen cell possible, larger, better fed (which often is the difference between a good queen and a poor one), and better cared for. Some will say a swarm or rather a queen from a swarm cell will intensify the swarming characteristic, but it won't. Another reason swarm cells are the best is that they are built for a definite, prearranged purpose, whereas supersedure and grafted cells are built on the spur of the moment to take care of an emergency. We prefer supersedure to grafted cells but we use the latter when there are not enough of the first two and the weather gets warm enough. The grafted cell has one advantage, you can get exactly the stock you want (making allowance for the laws of genetics). In these last nucs we let the cell hatch and after the queen mates and begins to lay she is ready for any emergency.

As stated before the primary purpose of these nuclei is to furnish an ever-ready, tested, laying queen. When for any reason we need a queen we kill the old queen to be replaced and remove an empty comb from her hive. We next go to one of our nucs, remove the comb on which we find the queen, and after gassing the bees to be requeened with ammonium nitrate we insert the comb from the nuc in the middle of the brood chamber. The empty comb removed is placed on one side in the nuc. When we have all the nuclei established that we wish, we store any surplus queens, both virgin and mated, in nursery hives. One of these queens is given to the nuc from which we have just removed the queen. Sometimes we have cells available and when we do we use one of these. If we have no queens or cells to requeen our nuc, we just let them raise one of their own.

We also find our nuclei ideal for furnishing bees or brood for colonies that need help. If it is at the beginning of a honeyflow we give bees and sealed brood. Unsealed brood would be a detriment as it would take extra bees and food to care for it and the bees would not emerge in time to assist in the honeyflow. If a colony needs bees only, we gas it lightly at entrance and shake a comb or two of bees from a strong nucleus at the entrance. Be sure not to get the queen. The combs are returned to the nucleus. As the bees in the home colony are always the killers a slight gassing will take the fight out of them and the shaken bees will be accepted. If a colony needs brood as well as bees we remove an empty comb or two from it, gas the bees and give it an equal number of combs from

some strong nucleus and place the empty comb or combs in the nucleus.

We may wish to unite an entire nucleus with a weak colony. In this case if the queen in the colony is a poor one, we kill her and either with newspaper or gas unite our nucleus to it. If both queens are good ones we save one and unite as above. The nursery above mentioned is made by placing a queen excluder above the brood chamber, then a couple of supers on this and another queen excluder. Over this excluder we place an empty super and it is here we place our queens, in cages with both ends fastened. A better nursery is made up the same way except in place of the empty super on top you put a hive body of combs. You make a frame, regular size, that will hold your queen cages, bring up two combs of unsealed brood from the brood nest, put them in your top hive and the frame of queen cages in between them. In either case the bees will care for your queens and they will be fat when needed.

Our stronger nuclei are ideal for drawing foundation but if there is no flow on they will have to be bountifully fed. We also use them to store feed for other colonies, which saves us the trouble of operating so many feeders. When they get a comb fairly full we trade it for an empty one in the colony we want to feed. All through the season we are culling combs. Any time we find a poor comb it is traded for a good one from some nucleus. At the end of the season they are sorted out, the comb cut out and rendered and a sheet of foundation inserted.

In our territory we have a two crop season, the clover, or summer flow and a fall flow that at times is greater than the clover flow. This late fall flow, that extends to freezing, presents a lot of problems we do not have in the summer flow and some that we do have, as swarming. We have had colonies store twelve pounds surplus on the 10th of November and cluster that night for the rest of the winter. In a situation like this we have a lot of green nectar on hand, sealed and unsealed brood which makes it difficult to get our brood chambers adjusted as we would like them. So in case of relaxing after the clover flow we have to reorganize our forces and get ready for the fall crop. When our summer flow is a failure, or nearly so, it often takes all our surplus to build up for the fall. As a rule there is no nectar available between the two flows, so, since we want to winter over any nuclei we do not use, it becomes necessary we feed them during this dearth of nectar as we want them to be as strong in bees as possible for the winter. During the summer flow empty combs have been substituted for the feeders in order to give more room and even then in a good flow combs of sealed honey have to be removed and more empty combs or frames of foundation given. Now these feeders are replaced and the nuclei generously fed all during the period when there is no nectar coming in, usually some forty or fifty days. At the beginning of the fall flow they are again removed. Also at this time every regular colony that is short in bees or has a poor or old queen has a nuc added to it, either by gassing or by the newspaper method. After all colonies are cared for the nuclei we have left are prepared for winter.

There are three conditions necessary for successful wintering of our nuclei, a fair sized cluster of young bees, plenty of stores, and a protected yard. A cluster need not be too large to winter; the advantage of a large cluster is the quick get away in the spring. We have wintered many nuclei here in the Midwest with clusters no larger than a pint of bees. If they can keep in contact with stores we have no trouble. And that is our problem, to have plenty of available stores at all times. Even a large cluster will sometimes starve with honey all around its perimeter and there is still greater danger of starving in a small cluster. Plenty of stores doesn't mean stores over to one side of the hive but right under the cluster. So we take particular pains to see that all five combs of our nucleus are filled with sealed honey and some pollen except one tiny spot on the bottom of the middle frame that will serve as the basis for the start of the cluster. By having all combs full of honey there is no chance for the cluster to get on an empty comb, and starve, as I have had them do even though there was plenty of honey in some other part of the hive. These same factors are true of any wintering, either large or small colonies.

We like our nucleus type of hive for wintering our small clusters as we can't help but think it is more comfortable for them. It also has other advantages; the combs are interchangeable with anything in our outfit and there is enough room to prevent trouble in case we forget it longer than we should in a honeyflow. We have some locations that are better wintering spots than others, spots that have good windbreaks on the west, north and east but low enough not to cast any shadows that would shut out the least bit of sunshine; and good drainage, air, as well as soil. That's all.

Once upon a time we used to winter our nuclei over strong colonies, with an inner cover between, its hole screened above and below and a top entrance for the nuclei. But we finally decided there was no advantage in wintering by this arrangement; we thought the nucleus would get the heat from the cluster below through the screened hole in the inner cover. But it doesn't work; for when the nuc needs the heat the most, when they are clustered, there is no heat coming up as the clustered bees below just don't let any heat escape. On the other hand they do throw off more or less moisture that moves up and condenses in the nucleus which is bad. However, we do find putting the nuc up in the spring after brood rearing has started is good practice; the heat from the brood below not only enables the nucleus to build up more rapidly but also partially relieves the swarming impulse below. When the weather warms up and the nuc is strong enough it is set off on a stand of its own.

In the spring nuclei that are not needed to replace winter loss are set over into hives of standard size and operated for honey and the empty small hive reconditioned for another season.

Carbolineum for Bottom Boards

Our use of this product has been in dipping bottom boards. Our supplies are cut from cypress which must have access to the open air or rot will set in. As long as we paint on only one side we are all right, but if we dip in preservative and then paint, that seals all the pores and the equipment will not last as long as unpainted equipment. When we dip bottom boards we do not paint. All of our hives are on wooden benches, three hives to a bench. Carbolineum or crude creosote will make these benches last longer.

Harvey York
Georgia

THE Sideliner

A Young Man Looks At Beekeeping

by Lamar Phillips

For the past twenty-five years my father has been operating varied amounts of colonies of bees in the San Joaquin Valley in Merced County, California. As a result my brother and I have become fully indoctrinated in the lore of beekeeping, so it seems. But every year we learn something new, and this, I believe is what makes beekeeping so interesting and so fascinating. The never ending field of learning is what has propagated that old saying—"once a beekeeper, always a beekeeper." If one is not learning more frugal economics, then he is gaining new knowledge on the habits of bees.

But the biggest drawing card is perhaps something far more appealing than fascination—the dollar. The dollar is doubtless the most clamored for element in the world today. I sincerely believe one would find his efforts fruitless in trying to convince a beekeeper that there is not money in that business. Of course, like any other successful business, a complete knowledge is vital and monetary frugality is, indeed, a necessity.

Beekeeping today is one of the easiest fields of business in which to begin. A large amount of capital is not necessary, and yet it yields one of the largest percentages of net profit on the agricultural market. The fact is, if it weren't for the bees' stingers, there would be more beekeepers than the country could handle, as is nearly the situation now in some localities.

With the coming of alfalfa seed pollination, the number of beekeepers has skyrocketed, especially in California, and a continual increasement is to be expected. However, this increase so far has not been detrimental to the beekeepers because of the equal increase in alfalfa production. The only enhancement this increasement might endear is to the beekeeper who operates only for honey rather than for pollination services. As long as the new beekeepers stick to the field of pollination the honey producing lands will not be overstocked. If that should ever happen migration would seem the only feasible alternative.

As a young beekeeper I can only say that the future looks bright. If the honey market continues to stay open, as it has been in the past five years, then I take up the cry of hundreds of other beekeepers, exclaiming, "Vive la Beekeeping!"

A Dry Sugar Feeder

by Carter B. Hamilton

When I consulted some well-known beekeepers about inside feeders for honey bees, they told me that they fed dry sugar on the top of the inner hive cover and pollen or pollen substitute in the form of cakes placed on top of the combs in the hive.

Did you ever consider making a container for these and placing it in the hive? The bees also need a mineral supplement in the spring while they are raising their brood. Bees go vast distances seeking brackish water, or salt to go in that diet.

Here is how to build one of these inside feeders, for any depth hive. Dismantle one of the frames. Take the sides off an apple box or use some other suitable material. Cut four end pieces 2¼ inches wide and the same length as the end pieces of your dismantled frame. Make a bottom board the same length as the bottom of the frame but make it 2¾ inches wide. For the sides use two pieces the same length as the bottom but lacking ¾ inches coming to the top. As you assemble the feeder place the other two end pieces in your feeder in about this order; a two inch compartment for mineral supplement (or table salt), a five inch compartment for pollen (or pollen supplement), and the remaining compartment for dry sugar. Take the top bar of your frame and rip it down the middle making two out of it. Nail these narrow top bars on the outer edges of the top of your feeder.

This feeder will occupy the space formerly taken by two frames, and will enable you to place the necessary ingredients directly in the hive. The space between the two top bars will permit refilling without removing it from the hive. If the feeder is not large enough make one that will replace three frames.

This feeder will only be necessary to refill every two or three weeks. If you moisten the top of the sugar the bees will begin to feed on it a little sooner.

With the sugar in the large compartment, pollen in the medium sized compartment and salt in the small compartment, you have all of the necessary ingredients needed to raise young bees.

Texas

A Daughter's Tribute

A middle-aged gentleman, a professor of apiculture, a church goer, a lover of nature, but most of all my dad, this is Mr. Edwin J. Anderson.

To his professional associates, Dad is an apiculturist at Penn State University doing research and developmental work along with teaching.

At the same time, he is a father of five children, a good man. His everworking sense of humor used to often find us bewildered, as children, but now we can appreciate Dad as an entertainer, a jokester. With this as a core, we love to have family functions around our house. Here, Dad is always in the center of activity. Take last Saturday, for example, when he fried the steak for our picnic at Whipple's Dam. He helped to make the day such fun!

Dad loves the out-of-doors. In his mind, there cannot be found a much better sport than to go out to fish or to hunt. Even though we take every opportunity to tease Dad a bit should he come home empty handed, the case is usually that Dad does land fish or bag some game. On the other hand, if Dad "loses," he does stand as a good sport.

Dad also adjusts easily to new situations, and has an "open mind." This proves to be a most valuable family quality, especially when three of us all want the car at the same time that he had planned to go to a fraternity meeting. Usually he can find a solution satisfactory for each of us.

Have you ever heard of a man who wears both belt and suspenders? This, too, is Dad! And when he gets up each morning, for breakfast he must have honey on his cereal and in his tea. This, of course, makes one "feel better, live longer."

Yes, I'm proud of Dad. He's a good man!

Elizabeth Anderson

Painting the Metal Cover

by S. S. Miner

In my article in February, page 53, on "Hive Painting," there is one point that I neglected to explain: namely, what is done about painting the top of the metal cover?

My practice has been to leave this unpainted until the bright galvanizing oxidizes to a gray color, then paint it white. I have noticed several times that an unpainted, oxidized metal cover will get so hot on a bright summer's day that the bare hand cannot be held on it. Obviously this hot metal, in spite of whatever insulation is included in the cover, must contribute somewhat to the heat within the hive, and add to the bees' cooling and ventilating problems. On the other hand, a white-painted cover is always cool to the touch, owing to the heat-reflecting properties of light colors. This surely must make it easier for the bees inside, as fewer of them will have to give their energies to ventilating. Hence a greater proportion of the population will be available for fielding, comb-building, and other productive work.

In connection with this same subject, an interesting item appeared in Gleanings, April '57, about an Alaskan beekeeper who found that painting his hives *black* increased honey production. There, climatic conditions make it desirable to *absorb* heat from the sun, to take some of the burden off the bees, while here the problem during the honeyflow is apt to be one of hive cooling, rather than warming. Farther south, the problem would be more acute than it is here.

Probably many beekeepers could benefit from examining the painting problems as it relates to their particular climatic situation. In some cases a proper selection of color might result in a significant increase in production.

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THE Beginner AND HIS Bees

Editor

W. W. Clarke, Jr.

Extension Apiarist
Pennsylvania State University
University Park
Pennsylvania

Bill knows most beekeepers in his state by their first name. He is also a beekeeper with about 100 colonies. Send your questions to him or to the Journal. He'll help you.

**Question from*
Jim Esmoil
Iowa

► I am a beginner with only a small number of colonies. The occupation fascinates me and, since I am only 17, the possibility of beekeeping as a profession interests me. My questions may be "wild" but it concerns the possibility of honey production on a commercial scale in the Hawaiian Islands. It seems to me that the tremendous amount of floral growth on any of the islands would attract honey producers, especially since Hawaii has become one of our states. I have attempted research on this problem myself but have accomplished little. It is hard to find any information of interest.

Answer:

I can see why you are interested in keeping bees in Hawaii; it should be a beautiful place. I think you can get the best information on beekeeping by writing to the Department of Entomology, Hawaii Agricultural Experiment Station, University of Hawaii, Honolulu 14, Hawaii.

I have been informed that it is possible to produce a good crop of honey and that the quality is fine. There is a possibility for migratory beekeeping. I also understand that at present the bees are controlled by one or two men. I suppose there is room for more.

I am sorry I cannot give you any more specific information but I believe all the information you need can be obtained firsthand from the University of Hawaii.

Question from
Walter L. Minns
Massachusetts

► (a) I have a considerable quantity of slightly fermented, sourwood honey. I have tested my bees with this by feeding a small portion to them and they take it with great eagerness. What will the effect be if I feed this honey back to them this spring? Harmful? Can they resweeten it? Use it for brood?

(b) In feeding the bees with granulated honey, would it be better to liquefy it first?

(c) I have some brewer's yeast and soy flour left from last year. Is it still effective?

Answer:

(a) I see no reason why you should not feed the slightly fermented honey back to the bees this spring, especially if you first heat it to 140 to 145° F. It will make an excellent feed for brood rearing and building comb.

Heating the honey to 140° will kill the yeast that is present and make the honey almost palatable. When fermented honey is heated it foams considerably, so allow plenty of space.

It is best to add 1 part water to 3 parts of honey for feeding. If there is any danger of disease, 0.5 grams of sulfathiazole may be added to each gallon of the mixture as a preventive.

(b) I would liquefy the granulated honey before it is fed and also dilute it with 1 part water to 3 parts honey.

(c) To the best of my knowledge, brewer's yeast and soya flour are very stable and should be just as good for feeding this spring as last year, providing it has been stored properly so as not to spoil.

I think you could improve on your pollen substitute by adding collected pollen. You can collect pollen by using a pollen trap on one of your colonies during the summer and store it until next season.

Some Suggestions

In working with bees 51 years, I have learned to work quietly and easily. No quick jerks. The quieter you work with your bees the better it will be. Use as little smoke as you can get by with. Too much smoke will sometimes cause the bees to ball or kill the queen. About 2 or 3 light puffs at the bottom and as soon as you start raising the cover start puffing light puffs in on top of the inner cover letting the smoke go in the hole in the inner cover. Raise the inner cover gently and as you raise the inner cover puff the smoke lengthwise along the tops of the frames. To use too much smoke makes bees angry and on your next visit to this colony they will be ready for you.

Bees cannot be trusted, any race or strain of bees will sting. Some breeds of bees are worse than others, so the beekeeper must be well protected with a good veil before he starts working. About three years ago a man in Kentucky died from bee stings because he was not prepared against stings when he went into the bee yard.

So as I say, work easy with your bees and be prepared at all times. It is as easy to work with bees as falling off a log if you will only watch your step. The bee stinger is the beekeeper's best friend. It has kept thousands and thousands of people from keeping bees. Yes, the little bee sting gives the man that keeps bees a better price for his honey, so after all the bee sting is a good friend.

• *Who sent this? Will the writer get in touch with us. Name and address lost.* •

Have You Tried This?

Handy Bee-Escape Trap

A quick and painless way to get the bees to leave a super of honey that is ready to be taken off is to make a cone trap of wire mosquito netting and put it on top of an inner cover with the bee-escape hole open, with another inner cover underneath the super with the regulation bee-escape trap to feed the bees back into the brood chamber.

I was successful using this method in the summer of 1958 and believe I cleared the supers more quickly. Another advantage was that if the bottom regulation bee escape got clogged, stuck or filled with dead drones, the top wire cone trap was always operating. Also it was fun to watch them fly up and out the small end and nary a one was able to find their way back in again.

By using an inner cover with a hole 8 inches in diameter with the base of the trap flanged and made bee tight with light staples, I could glance down into the super very easily to see the bee population declining to the vanishing point or at least to the point where there were so few left that removal was a cinch.

I also used the same idea to trap bees from buildings and trees. My trap looks like a pointed hat, Chinese-style, with the opening at the tip about one inch in diameter.

Frank C. Boyle
Connecticut

Bins for Nails

A good way to make bins to hold different sized nails, bolts and screws is to cut out one side of milk cartons, quart or two quart size. These are strong and inexpensive and quick to prepare.

F. A. Korn
California

Queen and Pollen Excluder

Place a piece of plastic material (like polyethylene) on top of the brood nest instead of the usual queen excluder. For example, for a Langstroth hive, 18 by 14½ inside measure, make the plastic 15½ by 12. Then you will have a 1¼ inch clear space all around the edges. This allows the bees free access to the supers. The queen seldom passes up into the supers and when she does she only lays in the bottom of one or two combs. Pollen is not carried into the supers either. This plan stops the difficulty of getting some colonies to accept the usual excluder. The advantages far outweigh any disadvantages.

H. D. Peterson
Vice-President
Scottish Beekeepers' Association
Scotland

Getting Rid of Wax Moths

In the South it is important to keep wax moths from the hives in the non-honey producing season when colony strength may be low. If moths are in a hive, remove the hive from its stand and place a clean bottom board and hive body in its place. Remove the combs from the old hive one at a time. Scrape off the moth cocoons, worms and whatever may be found and put the combs back in the new hive in their original position. Then close the hive and reduce the entrance. Then clean the old hive parts. Pour on boiling water and scrape off all foreign matter. After a week or ten days, if there is any sign of moth, repeat the operation. It may take three times before the colony may be considered free of moths.

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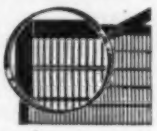

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Information Required to Evaluate Bee Losses from Insecticides

J. E. ECKERT
University of California, Davis

The increased use of insecticides in the past thirty years has posed a serious problem in the pollination of various fruits, vegetable and seed crops through the destruction of the pollinating insects. The solitary bees, in many instances, have been all but eliminated by the combined use of pesticides, weedicides and by intensive cultivation. The monetary value of their loss is difficult to measure and practically impossible to replace in kind.

Thousands of colonies of honey bees have been killed or reduced in value by the application of pesticides in the attempted control of injurious pests. The fact that the honey-bee colony can be divided, increased in number and moved from place to place as desired, has enabled the beekeeping industry to survive this real threat to its very existence. The continued loss of bees from pesticides, however, is making beekeeping a very hazardous occupation and is increasing the cost of pollinating practices.

In order to evaluate bee losses from insecticides, one has to consider the many factors involved and the manner in which the bees and their colonies are injured.

Cost of colony maintenance

It costs commerical beekeepers, on the average, from $5 to $10 a year per hive for labor, depreciation and carrying charges to maintain each colony of bees in good working condition. For the beekeeper to stay in business, each hive must be made to return a profit of approximately the same amount as the cost of operation. Any loss of earning power, due to the reduction of colony strength, constitutes a loss to the fruit and seed grower as well as to the beekeeper. The expense of caring for the colonies generally continues, and sometimes even increases, when the colony

strength is reduced below the economic level of production.

Manner in which bees are injured by insecticides

A majority of the insecticides injure bees either on contact, or when they are taken internally, or as fumigants. Some are more toxic than others in that they may injure the bees in more than one way. Parathion, for example, is one of the most toxic pesticides to bees because it acts as a contact insecticide, stomach poison, and as a fumigant. Some poisons are more injurious than others because of longer residual properties.

Bees come in contact with pesticides if the applications are made when the bees are working actively on the crops treated, and when they come in contact with plants that are covered by direct application or by drifting poisons. Bees secure the poisons from nectar and from pollen they collect from blossoms and by coming in contact with other poisoned parts of the plants from which they are prone to seek their food supplies.

Field bees may be killed in the field gathering nectar or from the effects of the fumes of the poisons or by coming in contact with the poisoned surfaces of plants. If the field bees die in the field, the colony loss is generally less severe than if the bees carry the poisons on their bodies or in the pollen to their hives where it generally causes the loss of additional hive bees and sometimes the brood. While bees may be killed by pesticides getting into the nectar, they very rarely live long enough to convert and store the nectar as honey in the hive. (Should this ever occur with any particular poison, it would be necessary for the best interests of agriculture to have the pesticide removed from use on growing plants.)

Poisons also may be blown or drawn into the hive if the applications are made directly over the hive or on vegetation immediately in front of the hive. Colony population also may be reduced when the water supply of bees is contaminated by the application of pesticides. This has occurred when bees gathered dew for moisture from plants that had been treated with toxic substances.

Distances bees fly

While bees generally work in a radius of one to two miles from their hives, they may work at much greater distances, up to at least seven miles, under favorable conditions. For this reason, apiaries located within a mile of an orchard or field to be treated with toxic substances while the plants are in bloom are considered to be within the danger zone. Heavy losses of bees have resulted at much greater distances than one mile.

Transport of hives

While hives can be moved from one site to another, this factor cannot be used in all instances to avoid loss of bees from the application of pesticides.

With the best of equipment it takes some days to move several hundred colonies out of an area of a mile radius when they have been concentrated for pollinating purposes. Soil conditions may be such in the orchard or in irrigated fields as to make it impossible for trucks to be used for the purpose. Commercial beekeepers frequently operate a dozen or more apiaries, over distances of a hundred miles or more from their homes and so are not always available if notifications are sent them of intention to apply pesticides to crops on which their bees are working. Colonies have to be moved two miles or more to prevent the field bees from returning to their former location.

Evaluation of losses

The monetary loss to the beekeeper or to the grower caused by injury of bees by pesticides depends on the severity of the reduction of the colony strength, including the loss of brood. This reduction is frequently quite difficult to evaluate unless the loss in the population exceeds 25 per cent or more. Where the entire field force is killed in the field, very few dead bees may be found in front of the hives. This is true particularly when the bees are working treated fields at a considerable distance from their hives and when the poisons are highly toxic. A normal three-story colony with one or two supers of honey should have all combs fully covered with bees. If the field force is killed the population will be reduced generally by half and the hive will be noticeably less crowded with bees. If no poison is carried back to the hive on the pollen or on the hairs of the returning bees, the emergence of bees from the brood in the combs will repopulate the hive within two to three weeks. However, the monetary loss to the beekeepers and to growers will be in proportion to the reduction in the field force. It may result in a total loss of the honey crop or in a loss of seed or fruit set.

If the bees are working in the immediate vicinity of their hives, many field bees may return and contaminate some of the hive bees with poisons adhering to their bodies. Under such conditions, numerous dead and dying bees will accumulate in front of each hive immediately after pesticides have been applied—if they are applied when bees are working in the fields treated. A similar loss of bees frequently will be noted in front of hives located at distances a mile or more from the field treated, although the number of bees killed generally becomes less with an increase in distance beyond the half mile range. There may be a continued loss of bees accumulate in front of hives for a period of several days after each application, if the residual qualities of the pesticides used are still effective and if any poisoned pollen has been carried back to the hive.

In the days of the arsenicals, entire apiaries were killed because the poisons would be carried back to the hives and stored with the pollen. This poisoned pollen would then kill the nurse bees and brood. With the newer types of poisons the loss is generally in a reduction of the hive population. The monetary loss to the beekeeper may remove all profit from his business when the colony population is reduced below the economic level. He then may have to meet his expenses without any chance of income until his bees can build back to normal strength.

In order to estimate the reduction in colony strength or the monetary loss from poisoning, the beekeeper will have to keep a weekly record of the strength of his colonies and of their production in honey or in pollination services. If the colony population is reduced before the honeyflow or before the hives are to be moved into an area for pollinating purposes, the entire income of the colony for the season may be eliminated. He may have to feed the injured colonies their stores necessary to build them up for another season.

Another method of determining the monetary loss of bees from pesticides is for the grower, or beekeeper, to record the number of bees working in a given field before and after it is treated with pesticides. Usually, the field population does not change abruptly from day to day, unless weather conditions intervene or the field work is interrupted by the death of the field force. In some instances, plants may be made unattractive to bees by the application of less toxic pesticides but, in such cases, the field population should be restored within 24 hours. Where the field force is killed by pesticides, the crop treated will be devoid of bees until other bees can find the field and recruit more workers to the blossoms. This interval will depend on the severity of the loss of bees in the entire area of a mile or more from the field treated.

The beekeeper should be able to recognize any unusual death rate or reduction in strength of a colony from that which normally takes place. An average colony in which 1,000 young bees emerge every day will ordinarily have approximately this number of old bees die every day at the height of the season's operations. These bees generally die in the field and do not accumulate in the hive or in front of the entrance.

Colonies are subject to certain adult bee diseases, such as paralysis and Nosema apis, which cause an abnormal number of the adult bees to die in or around their hives. These symptoms are generally recognized by the average beekeeper and can be distinguished from the sudden death caused by poisons. Brood diseases may cause a reduction in the colony population but this reduction is generally gradual and can be positively identified by the observant beekeeper.

The determination of the type of poison causing a loss of bees is most difficult. In many instances, the loss occurs between visits of the beekeeper and there is little or no evidence on the outside of the hive. Dead bees may be blown away by the wind, or carried away by other bees or by ants and beetles. A pint of dead bees is generally requested for each chemical examination. In many cases, two or more pesticides may have been applied in the same area. Any one of a dozen or more pesticides may have been used, and it is seldom possible for any chemical laboratory to make tests for all poisons that could have been used.

Bees may leave one source of nectar to work on another but this change does not take place as quickly as when bees are killed by pesticides. An example of this method of evaluating the loss of bees occurred some years ago when a melon grower observed that bees were no longer visiting his fields after he had dusted with a pesticide. He had to rent new bees to take the place of those colonies that had been killed because he knew that the loss of a crop from lack of pollination would be far greater than the rental paid for the bees.

Quite frequently beekeepers will evaluate their losses from pesticides by the differences in production of colonies affected by the poisons and colonies of similar strength but not affected in similar locations. Variations in seed, fruit and honey production in many cases are due to the reduction of the working force of pollinating colonies caused by the repeated use of pesticides. It may take a colony two or three weeks to recover the loss of its field force but

(Please turn to page 159)

Apicultural Research In Israel During The First Ten Years of Her Statehood (1948-1958)

by DR. I. HARPAZ, Hebrew University, Faculty of Agriculture, Rehovot

In the opinion of at least some authors (4) that beekeeping as a craft in Palestine dates back to the ancient times of the Bible, where the country is dubbed "the land flowing with milk and honey." However, apicultural research in the Holy Land is of a much more recent vintage, going back no more than a quarter of a century.

Its inception followed the introduction of the modern Langstroth equipment to replace the primitive earthenware hives, which incidentally are still common all over the Middle East. The establishment of the State of Israel in 1948 invoked a remarkably dynamic drive which has practically revolutionized every aspect of the country's life and its agricultural pattern in particular.

As regards beekeeping, the most striking development was the replacement, on a country-wide basis, of the inferior local bee (*Apis mellifera* var. *Syriaca)* by a selected stock of Italian bees imported from the United States. This task has been undertaken, and is still being carried out, with unfailing efforts, by the officers of the Bee Section of the Israeli Ministry of Agriculture. Their painstaking job of maintaining the thoroughbred stock was vividly described by The Reverend Brother Adam (1), who visited the country in the spring of 1952, and also later reported in detail to the XVII International Beekeepers' Congress by Mr. A. Ben-Nerya (2), Chairman of The Beekeepers Association of Israel.

The role that honey bees play in agriculture is far greater than the mere production of honey and beeswax. Farmers in the United States for instance, usually pay beekeepers for pollination services when they place their bee colonies in the vicinity of crops such as alfalfa and cotton,

stone fruits and the like, as it has been proved beyond any doubt that the presence of pollinating bees considerably increases the yields of such crops.

Nevertheless, apicultural research in the State of Israel has so far lagged behind the amazing progress achieved in other branches of agriculture in general and applied entomology in particular. Most regrettably, too little has been done here in the field of bee research since the time Bodenheimer and Ben-Nerya (5) published their pioneering work covering one year of studies on the biology of the honey bee in Palestine. However, the research activity that still took place during the last 10 years can be briefly reviewed as in the following lines.

The main effort has been concentrated, during the period under review, on pests of the apiary and their control, as well as on the yet unsolved problem of poisoning bees by agricultural pesticides. Both matters are of great practical urgency and had to be given priority for an on-the-spot investigation.

As regards pests of the apiary, reference should be made to a detailed study of the life histories in Israel of both the Greater wax moth *(Galleria melonella* L.) and the Lesser wax moth (*Achroia grisella* Fabr.) carried out by Marton (9). The former moth is known throughout the world as the menace to beekeepers, creating havoc in the hives by infesting and destroying the combs whenever a bee colony is weakened due to any primary factor. In particular the damage is great in storage of wax, where the Lesser moth also joins in, leaving hardly a single comb unaffected, unless appropriate control measures are effected in due time. The old-fashioned method of combating wax moths in storage by burning sulfur into sulfur dioxide, has been duly replaced by Rivnay (11) who, following a series of trials, introduced the much safer and more effective fumigation by ethylene dibromide. The latter has been suggested for that particular purpose by Rivnay for the first time in the world and has since then been adopted by beekeepers in many countries.

The Oriental hornet (*Vespa orientalis* F.), besides being a troublesome nuisance to humans and farm animals, is perhaps the most serious pest of the apiary here, let alone the extensive damage it causes every year to grapevines, as well as other fruit and ornamental trees. A thorough study of its social behavior, annual cycle, hibernation and feeding habits (12) provided, *inter alia*, an ample explanation of the reasons for the exceptionally severe outbreak of these hornets in the years 1948-1949. Due to the hostilities of the Palestine War of 1948, the hornets

were left to nest and breed undisturbed in the large tracts of land which were not cultivated. Also the agile Arab shepherds, which used to hunt and destory thousands of queen hornets around water pools in spring, have abandoned their homes and fled across the border owing to the war, thereby failing to practice their highly beneficial hobby. That study of Drs. Rivnay and Bytinski-Salz on the hornets' biology, besides giving us some fascinating data on this highly developed insect community, also suggested effective methods for baiting and trapping the hornets, as well as for poisoning or gassing them in their nests. The application of those methods has virtually put an end to the outbreak.

The losses caused, though inadvertently, to beekeepers through poisoning of bees by pesticide treatments of crops, sometimes greatly exceed the benefit gained by protecting the crop against pests, at least from a standpoint of national economy. Such hazards are of particular significance in a country like Israel, characterized by its small size and its densely multicolored mosaic of crops, leaving no safe areas for the beekeepers to migrate into at the times of poisoning emergencies. As an interim partial solution Ben-Nerya *et al.* (3) have suggested, upon their observations, to lock up the bees in the hives during the actual time of orchard spraying and 2-4 days thereafter, at which period the potency of the toxicant is the highest. Obviously, such a remedy is practicable only in a particular case where only one insecticidal application is given and during the cooler season of spring in the mountains. It will never work in an instance like cotton pest control where formulations highly toxic to honey bees are repeatedly used at weekly intervals on extensive areas during the height of summer. In order to safeguard bees under the latter circumstances, Harpaz & Lensky (6) set out to search for a substance that should repel the bees from poison-treated crops for at least the first few days following application. Their search, though yet fruitless, has still paved the way for better results in the future by clarifying experimentally the different responses of bees to repellent agents.

Of a more general biological character is the work of Horowitz (7) who made some preliminary observations on the inheritance of a number of male characteristics in F_1 hybrids between the indigenous race of bees and the imported Italian race. A more detailed study on the feeding habit of the worker bee, undertaken by Marton-Popper (10), added another challenge to the famous wear and tear theory regarding the longevity of bees. This theory claims that, barring accidents, a foraging bee normally works itself to death whilst the time she sits idle is added to her life span.

In the line of bee ecology there is a paper by Lensky (8) dealing with some factors affecting the temperature inside uninhabited hives, according to measurements taken by means of a black globe radiator connected to a thermocouple. From a practical point of view, his most important finding is that by whitewashing the hives, or by painting them white, the total diurnal amount of heat can be decreased by nearly 20%, as compared to the commonly silver-painted hive. Such treatment is of paramount importance for unshaded hives in a hot summer like ours, where a tremendous amount of energy has to be expended by the bees on cooling their hives down to the favourable temperature. Placing the hives on green grass was likewise found to be another contributory factor in maintaining a lower temperature during excessively hot periods.

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— TOP NOTCH RECIPES —

A Contest — These recipes have been tested by Pat Diehnelt, contest editor, in her own kitchen. See the list of suggested contests at bottom of page. Then send in your contributions. Give complete directions; exact measurements. Where did the recipe originate? Only one recipe on a sheet, please. Winner will receive a bordered certificate with her recipe on it, suitable for framing and a three year subscription, plus an illustrated honey cookbook. Other contestants will get suitable awards.

THE WINNER

Mrs. Chesley Harbo, Grove City, Minn.

Honey Rye Bread—Two loaves

1 cup lukewarm water
⅓ cup honey (½ cup if sweeter bread is desired)
2 teaspoons salt
2 tablespoons caraway seed
¼ cup cocoa (for nice dark color)
1 large cake compressed yeast or two packages dry yeast
½ cup lukewarm water
1 tablespoon soft shortening
2 cups sifted rye flour
3 cups sifted white flour

Method—Mix water, honey, salt, caraway and cocoa. Soak yeast in ½ cup of water five minutes. Add rye flour and yeast mixture and beat. Add 1 cup of the white flour and the shortening. Then stir in the remaining flour. Knead on floured board adding small amounts of flour to keep from sticking. Set to rise in greased bowl, with top of dough also greased, in a warm place (85 degrees) for two hours. Divide dough in two parts. Shape into loaves by rolling out dough ¼ inch thick. Then roll up tightly towards you. Set to rise one hour. Bake at 375 degrees with small pan of water in oven for 40 minutes. Cool.

Makes two loaves. Total cost of ingredients about 39c. Prepared easily. Texture and taste good. An old German recipe, delightfully darkened with cocoa.

Number Two Winner

Robert Berthold, Jr., Paterson, New Jersey.

Mother's Home Made Bread

2 cups scalded milk
⅓ cup powdered milk
1 tbls. salt
¼ cup Honey
½ cup margarine (I used butter)
1 pkg. yeast
½ cup lukewarm water
1 tsp sugar
6 cups sifted unbleached flour
⅓ cup toasted wheat germ
¼ cup melted butter

Scald milk, add powdered milk, salt, honey and margarine. Cool to lukewarm. Soften yeast in lukewarm water. Add 1 tsp. sugar. When dissolved add to lukewarm liquid. Sift flour and wheat germ together. Add 3 Cups to milk mixture. Mix well. Add 2 more cups flour and mix again, adding enough flour to make a firm dough that does not stick to bowl. Turn out on a floured board, knead until smooth and elastic. Place in a greased bowl, brush dough with melted butter. Cover bowl with a damp cloth. Set in a warm, not hot place to rise. When dough has doubled in bulk push it down with hands and fold under and recover and let rise again. When dough has risen and is light (about 45 minutes or more) shape into 2 loaves and place in greased bread pans. Brush with melted butter and cover. Let rise in warm place until double in bulk. If glass bake dishes are used preheat the oven to 400° F. and bake for 15 minutes then reduce heat to 350° F. for 35 minutes. Please note if metal pans are used bake as follows: Preheat oven to 425° F.—Bake for 15 minutes then reduce heat to 375° F. for 35 minutes. For various varieties one may substitute many flour combinations such as 1—3 cups white all-purpose flour and 3 cups whole wheat and ¼ cup molasses. 2—5 cups all-purpose flour and 1 cup soy bean flour. 3—5 cups all purpose flour and 1 cup rye flour.

Total cost of ingredients about $1.40. Light as a cloud, dependable as tomorrow.

Number Three Winner

Mrs. Ardith Wyckoff, Chester, New Jersey.

Glossy Bread Braids

Soften two cakes of compressed yeast, crumbled (or two packages of active dry yeast) in ¼ cup of lukewarm water. Let stand 5 minutes. Combine a half cup of melted butter, 2 tablespoons of dark honey, 2 eggs slightly beaten, 2 teaspoonfuls of salt and 1 cup of scalded milk in large bowl. Blend well. Cool to lukewarm. Add the softened yeast. Blend in 4½ to 5 cups of Pillsbury's Enriched Flour gradually to form a stiff dough. Knead on well floured board until smooth and satiny, 5-7 minutes. To knead fold the dough over on itself and push it lightly with the palms of the hands. Repeat this process rythmically, turning the dough a quarter way round each time. Put in greased bowl and cover. Let rise in warm place (85-90 degrees) until light and doubled in bulk (about 2 hours). Then place dough on floured board and divide into 8 parts. Mold into balls. Cover with inverted mixing bowl and let stand for 15 minutes. Shape each ball into a strip 12 inches long. Place four strips side by side on well greased baking sheet; pinch together at one end and braid. (Weave the far right strip over and under to the far left. Then weave with the next far right strip. Repeat the process until the braid is completed.) Pinch ends together to seal. Repeat with the four remaining strips of dough Cover and let rise in warm place until very light and puffy (about one hour). Brush generously with slightly beaten egg or egg yolk. Bake in moderate oven (375 degrees), 35-40 minutes until deep golden brown.

Ingredients about 63c. A Swiss specialty; special occasion look with everyday ease.

Suggested Contests

We have a problem. There may be too many recipes for the space allowed. So when recipes that have been tested are left over, they will have to be used at another time and maybe in another place. Try to get your recipes in as soon as possible. Cake recipes should be in the last of March or the very first of April at the latest. Cakes are for the May issue; Springtime salads for June; Summer drinks and punches for July; Picnic Packing Cookies for August; Vegetables for Sept.; Meats for October; and Dieting Specialties for November.—Pat

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Let's Get Together

Season's Meetings
North Missouri Association

April 12th—Salisbury, at Virgil Todd's.

May 10th—Marceline at W. A. McConnell's.

June 14th—Keytesville at La Vern Lampe's.

July 12th—Brunswick with fish fry at Edith Neidholdt's.

Aug. 9th—Salisbury, at Frank Rogers'.

Sept. 13th—Salisbury at Edw. Kressig's.

Oct. 11th—Salisbury, fall festival, Coleman Club House.

Central Illinois, Decatur, April 26th

The Central Illinois Association will have a spring meeting at the home of Mr. and Mrs. Earl W. Chaney, 1625 East Division St., Decatur, Sunday afternoon, April 26th, at 2 p.m. All beekeepers are invited.
Keith L. Day
Secretary

Pennsylvania Short Course
Penn State University, August 17-21

The annual Beekeeping Short Course at Penn State University will be given this summer during the week of August 17 to 21. The complete course of lectures and demonstrations will be given as usual. This preliminary announcement is for those who wish to take their summer vacation during this week. Everybody is welcome. For complete information write to Dr. Fred C. Snyder, Dir. Short Courses, 211 Armsby Bldg., University Park, Pa.

Midwest Association, Kansas City, April 12th

The Midwestern Association will hold its regular monthly meeting at the I.O.O.F. Hall, 812 Westport Road, Kansas City, Missouri at 2:30 P.M., Sunday, April 12. Roger B. Boren, State Apiarist, Kansas Entomological Commission, will be the guest speaker with a message of interest to all beekeepers. Everyone welcome.
Carroll L. Barrett
Secretary

Connecticut Annual Spring Meeting
Hartford, April 25th

The Connecticut annual spring meeting will be held April 25, at the Y. M. C. A. corner of Pearl and Jewel Streets, Hartford, Conn. The meeting is set for 10 A.M. A speaker will be on the program for the day. The annual election of officers and several changes in the Constitution and By-laws will take place. Lunch will be in the Y. M. C. A. cafeteria. A welcome is extended to folks who are interested in bees and beekeeping.
Philemon J. Hewitt, Jr.
Publicity Chairman

Eastern Missouri, Clayton, April 6th

The Eastern Missouri Association will hold its monthly meeting the night of April 6, at 7:45 P.M. at the Clayton Court House, Clayton, Missouri, the county seat of St. Louis County. The main topic will concern swarm control, and other informative features. All are welcome to attend.

The March 3rd meeting was well attended and featured a talk and demonstration on bee equipment. Two splendid films highlighted the evening's interest, especially the one on the honey bee. The usual delicious refreshments were served during the time of fellowship which followed the meeting.
John C. Evans
Sec.

Middlesex County (Mass.)
Waltham Field Station
April 25th

The annual meeting of the Middlesex County Association will be held Saturday April 25th, at the Waltham Field Station at 6:30 P.M.

Before the supper a package of bees will be installed in a new Club Hive inside the building by Mr. McInnis, Mr. Carlson and Douglass Brown. During the summer months it will be moved to each member's apiary where the meeting will be held. Members can watch the development of the hive at each meeting throughout the season.

A symposium on "Spring Beekeeping Duties" will be conducted by Mr. Stevens, Mr. Olsen, Mr. McInnis and Mr. Haynes. A question period will follow.

At the March meeting the Honey Cooking Contest commemorating our 25th Anniversary was very successful. Miss Evelyn Bliss, home economics teacher of the Waltham High School was the judge. The competition was keen and many new recipes were brought in. The prize winning recipes are being mimeographed and sent to all members.
M. Southwick
Secretary

Iowa Annual Short Course
Ames, May 12th and 13th

The dates for the short course at Iowa State College in Ames are May 12th and 13th. Arrangements are being made for a very fine program. Let's all make an attempt to spend at least one day at this meeting. We must remember that this is all free so there is no good reason for staying away. Certainly we need at least one day such as this from our regular routine.
F. B. Paddock
Ames

Iowa Radio Programs

The 1959 series of radio programs will start April 1st with Professor F. B. Paddock again at the microphone. I am not too sure about the exact time as yet, but my guess is about 6:50 a.m. so tune in early. This is a very timely program from WOI, Ames and a lot can be gained by a turn of your dial.
Mrs. Carl Soder

Shelby County Association, Tenn.
Holds Three Day Short Course

The Shelby County Association held a three day short course in beekeeping at the Memphis Museum, Feb. 10-12. Leading the discussions were F. D. Cundiff of Jackson, Deputy Inspector; Edward Benner, Jr.; John A. Phillips; J. D. McClanahan; W. B. Stroup and E. J. Morton. There are about 300

(Turn The Page)

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beekeepers in Shelby County and at least 90 of them attended this short course. The subjects covered were hive assembly, catching and hiving a swarm, introducing package bees, single and double brood-chamber management, queen introduction, honey production, swarm prevention, extracting and processing honey, bee diseases, pollination. (Who says a county association can't put on a short course? This would do credit to a University—Ed.)

Ed. Benner, Jr.

Central Jersey

New Brunswick, April 10th

On April 10th, at 7:15 p.m., the Central Jersey Association will have an educational meeting at the Entomology Building, Jones and Nichol Ave., in New Brunswick.

Jersey's foremost research specialist on pollination and bee behavior, Professor Robert Filmer, will make an interesting talk, "Nectar Secretion as Influenced by Sunlight and Weather." Jack Matthenius, Supervisor of Bee Culture for New Jersey, will talk on "What Makes Beekeepers Give Up?" He will illustrate with slides. As an additional treat two films will be shown, "When Bee Meets Bee" and "Modern Bee Breeding." Visitors will be welcome.

Forrest Campbell
Secretary

Sweepstakes at National Honey Show

Mr. and Mrs. Henry Puppe, Puppe Apiaries, Nebraska City, Nebraska, won the sweepstakes and Class A and Class E, at the National Honey Show in Tampa. Fred Oren on right with trophies. Henry began as a hobby beekeeper and in 1942 decided to become commercial. He is now a producer-packer.

Summer Meeting of Middlesex County (Mass.)

The above picture is typical of a group at one of the summer meetings held at member apiaries. Regular meetings are on the last Saturday of each month from May through September. Here, observing the flight of bees, are (left to right) Mrs. and Colonel D. G. Pamplin, aero-dynamics engineer of the Raytheon Co.; John Furber, President; Aylmer Jones, Treasurer; and Asa Olsen, Vice President. (Photo from Boston Globe.)

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The Federation

Secretary Joseph O. Moffett
15 So. College Ave., Fort Collins, Colorado

Federation Activities

Despite snowstorms, below-zero weather, fog, rain, and truck failure, the Federation office was successfully moved from Cannon Falls, Minnesota to Fort Collins, Colorado last month. Now we are getting the office arranged, and trying to catch up on correspondence and membership dues.

Honey on loan to be diverted. The USDA has agreed to divert the honey purchased by it to the School Lunch Program. This will keep the honey out of regular market channels. In some previous years the government sold this honey back to packers on bids, thereby competing with honey yet unsold. President Budge and other beekeeping leaders stressed the need to divert this honey in their February meeting with Secretary of Agriculture, Ezra Taft Benson. This meeting was undoubtedly partly responsible for this change of policy by the USDA.

Karo ads being studied. Ads for Karo sirup have been run nationally which tend to compare honey unfavorably with Karo. In one of these ads a bear is eating Karo and saying "I'm glad I prefer Karo," while in the background another bear is swatting at bees who are annoying him as he tries to rob a bee tree.

Another ad shows an insect (presumably a bee) eating Karo and exclaiming how good it is. The Federation is appealing to the Federal Trade Commission to see what can be done about such ads.

Honey queen pictures to be available. Much good publicity has been obtained by the industry from the honey queen contest held in Tampa. In the near future pictures of the queen will be available from the Federation office for publicity purposes. The state of Virginia is already using these pictures for publicity and is selecting a state honey queen. Several other states hope to compete for the national title in Phoenix next January by selecting a state honey queen this year.

Members needed. The Federation needs more members so it can better serve the bee industry. Minimum dues per member are $3.00 for beekeepers owning 75 or fewer colonies, and four cents a colony for those owning more than 75 colonies. Make your check to the American Beekeeping Federation and mail it to 115 South College Avenue, Fort Collins, Colorado.

Continuing Tampa Resolutions
from page 112, March issue

The Agricultural Research Service is also requested to pay particular attention to perfecting and improving uncapping machines, extractors, and rendering equipment. The Crop Reporting Service also was asked to develop statistics on the losses of bees due to insecticides.

Because the advertising of corn syrup refiners is harmful to the honey industry, the Federal Trade Commission is being informed of this abusive treatment. The Federation also went on record favoring a move that light amber honey of table quality be given price support at the same level as extra light.

Under present conditions delivery points for honey acquired under the Commodity Stabilization Service are located often at extreme distances from production points, so it is asked that delivery points be established in major production areas.

The Pfund grader for many years was the standard instrument for grading honey color and it is generally available and used everywhere. It permits a more accurate reading than the comparator and off limits for the various color grades do not coincide with the Pfund grader. This causes confusion so it is asked that the Pfund again become the official standard for color classification.

The supplies of honey remaining in the hands of beekeepers are at present excessive. Also several foreign countries are increasing production which may be a threat to our honey market, so the Federation will support and encourage an import quota for all honey coming into the country, using the last ten years as a precedent so that importations do not exceed the yearly average of that period.

Since there are large blocks of honey under the Loan and Purchase Program that may finally be taken over by the government it is recommended that the surpluses be moved through the school lunch and institutional programs and not sold on a bid basis as in 1958.

The cost of honey production has increased materially because of greater cost of labor and supplies, so the Federation has requested that the parity support on honey be increased to not less han 80 per cent.

The Federation has felt from the start of the Price Support Program that the differential in prices between eastern and western states is not justified. The marketing pattern of western honey has changed greatly in recent years with a big shift of population to the west coast. So the bulk of western honey moves no longer to the eastern market but it finds a market in the West with more favorable transportation rates. So it has been asked that the price differential now in effect in the Support Program be eliminated.

There is a large surplus of honey in beekeepers' hands, without a satisfactory export market. There is also a dumping of honey in foreign markets from Communist sources, perhaps with a political objective. There is also a constant increase in honey production in Central and South America to further depress foreign markets. So it is requested by the Federation that the Export Subsidy Program be re-established with a payment not less than 2½ cents per pound.

The U. S. Department of Agriculture has also been requested that resealing be changed to extend the redemption date for honey under Loan and Purchase 60 days to give the producer more time to keep such honey from going into government hands.

Highlights of
THE TAMPA CONVENTION

by L. R. STEWART, ABJ Reporter

The 16th annual convention of the American Beekeeping Federation held at Tampa, Florida, January 27-30, was one of the most successful and harmonious meetings the Federation has ever held. Balmy 80° weather and southern hospitality were contributing factors. The Southern States Beekeeping Federation meeting held just before and the National Honey Show just after helped to increase the attendance. There were 400 Federation registrations and almost as many of the Southern States. The two large banquets were quite a strain on the gastronomical capacities of those who worry about their calories but we heard of no casualties. As the Federation consists of all activities relative to beekeeping many of those atttending the Convention are not in the true sense beekeepers; however it was surprising the number of honest-to-goodness beekeepers present, fellows with a few back lot colonies to those who operated in the thousands. And we are positive that every one who attended was more than paid for his time and trouble. We could never understand how anyone would invest good money in a beekeeping project and never do a thing to improve their knowledge, either by attending meetings or reading some of the literature on the subject. On our four weeks' trip through the South we visited many beekeepers and without exception you could classify them as soon as you set foot on their place, the homemade equipment of all sizes scattered about, of the fellow who never attended a meeting nor subscribed to a magazine, and the orderly, well-made and nicely painted equipment of those who were endeavoring to learn all they could about the business.

The 1960 Convention will be held at Phoenix, Arizona. Officers for the coming year are: president, L. R. Budge of Idaho; vice president Henry Hansen of Iowa; secy.-treas., Joseph Moffett of Colorado. At the banquet Michigan's queen, Miss Kay Seidelman, was crowned as the first American Honey Queen.

A convention of this type often has two or more meetings in session at the same time, making it difficult for one party to cover them without help. Consequently we had to depend upon others for some of our reports. On the other hand there were times when there were no meetings of any kind in session. We thought this idle time could have been utilized by some of the double sessions thus permitting one person to attend more of the meetings. Just an idea. We also thought it would be well to conduct as much of the Federation's business meetings as early as possible and thus enable the members who wished, to an earlier departure.

Much of the Apiary Inspectors' meeting was devoted to a discussion of the use of antibiotics in disease control, a repetition of the 1947 meeting. There is still a segment of the inspection force that is antagonistic to the use of antibiotics, in fact their use has been outlawed in certain states. We can understand how the improper use of them could be a menace; the same rule would apply to any remedy, yet that would be no just cause to outlaw the use of the remedy. There are hundreds of beekeepers who can testify that the proper use of sulfa and its sister drugs has not only cleaned up their disease but by outdoor feeding has cleaned up entire areas. Also at the Inspectors meeting it was suggested that inspectors should be better trained, with which we heartily agree. At the same meeting Dr. C. L. Farrar said diseased samples should be sent to the nearest laboratories rather than Beltsville as they were often received in poor condition when sent to the latter place. He also stated that the recurrence of disease was not the fault of antibiotics but rather the poor use of them. He further said we should not eliminate our present laws on disease, and use our antibiotics to supplement them; that a liquid treatment was better than a dry one. For a cure of A. F. B. a heavy syrup containing one gram of sulfa per gallon should be sprinkled or poured directly on top of frames 3 times at four day intervals. Give bees all the syrup they will take but not enough to cause it to run out of the entrance. One gorging in the spring and again in the fall is a good preventive measure. He also stated that Nosema is causing more damage than we realize; that much of our winter losses and dysentery is a result of it. Fumidil-B has proved 50% efficient in treatment of this disease. In another talk Dr. Farrar stated that instrumental insemination was the foundation of bee breeding; that it was almost impossible to make any progress until this technique was developed. He also said we needed more well trained young men to carry on our research work; that results of research reach the public too slowly, often taking two years, and that there should be some quicker way to get these findings to the public.

It was also stated by another speaker that hives in the sun were less susceptible to Nosema than those in shady places; that since infection is possible from soil and water conditions, moving often reduced the disease. Requeening also helps. Dr. Joe Moffett, the new sec.-treas., stated that E.F.B. had eliminated the black bees in some localities and that any treatment should be a preventive rather than for a cure. He also stated some areas were not favorable to EFB and moving was sometimes advisable; however any move must be economically sound.

Dr. James I. Hambleton, (it was nice to see him again), remarked beekeeping has many facets and he questioned the policy of putting it under the head of entomology, as it is in many states. He said we will have to make more progress and it might be better if beekeeping had some other set-up. It was stated there was no subject that was purer biology than beekeeping, and that beekeeping, full of biology and interest should be stressed rather than honey production, and if it was, honey would become a luxury.

Dr. Marvin Webster of the U S D A Agriculture Marketing Service called our attention to a situation that is rapidly developing, viz., the small producer is passing out of the picture and the big producer is getting bigger and bigger. Formerly the little producers sold most

(Turn The Page)

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of their honey in their local market. This market with its many salesmen is now left to some big, distant supplier. Most of the honey now produced will have to pass through certain big markets who are stocking only 30 day supplies and packing on order. When the little fellow was still active and marketing his own honey in his territory the big packers were active in the honey markets and carried a large inventory, which meant better prices for all concerned. But today with all the honey passing through these central markets there is no purpose in a heavy inventory as they are able to buy as needed. As a result the big markets are glutted, prices are lower, and ironically, production is up, and the situation is likely to get worse. He suggests we increase our selling efforts, stress quality and U. S. honey rather than imported. He asks, "Are we doing the best we can with what we have?"

Royal jelly enthusiasm was not as pronounced as it has been in the past. The fantastic claims and unethical practices of some greedy people have put quite a crimp in its popularity. There is no question it has beneficial qualities for the human race but to date there are no scientific data as to what they are. Most of the claims made for it are of foreign origin. To separate facts from fiction and conduct further research the Royal Jelly Foundation was organized by those interested. The results of their findings will be released in due time through proper medical channels.

Even though royal jelly has provoked many jests as well as sincere claims it has taught us more about beekeeping than we ever knew before. And one prominent speaker intimated it might be responsible for the increase of population in the South. Hundreds know what royal jelly has done for them but they have no scientific data to substantiate their claims. The research foundation hopes to prove or disapprove these claims. The royal jelly industry depends upon these findings, and here we might repeat what we stated a year ago—if the Foundation research discovers just one beneficial use of royal jelly to the human race it will mean the promised land for royall jelly producers.

We were told of the extension work being done in England; that many counties over there have beekeeping instructors and every county has an active beekeeping association in addition to the National Association. We were also told about queen substance which decreased as the queen grew older or became impotent, a factor in swarming; also that weather conditions affect swarming as well as the death rate in relation to reproduction. Drifting not only scatters disease but it lessens the honey crop; it is greater in central colonies. A good preventive is to paint hive fronts of different colors. A still better method, when practicable (as practiced by the Rocke Brothers of Illinois) is to arrange your hives in a circle.

Single matings of queens are rare. A distance of six miles is necessary for pure matings and sometimes they will go as far as ten miles on a wedding flight. For honey production queens should be bred for quick build-up; inbreeding induces low hatchability. Bees resist disease by hygienic behavior (good house cleaners, etc.,) spore straining, larval protection and larval resistance. Research should be conducted to intensify these characteristics.

One of the most interesting meetings of the entire Convention was that of the Hobbyists. Although this meeting was supposed to be for the little fellows 75% of the large crowd, many of whom were standing, was composed of the so-called 'big shots,' a fine gesture on their intelligence as they realized they can always learn something from the little fellow. This preponderance of the big boys was not noticeable until one of the panel speakers stated he was positive bees were first brought to this continent by some of the early pilgrims. He was immediately questioned by a member of the audience who had done quite a bit of research on the subject as to what authority he had for making his statement; he had none. It was pointed out that even though entomologists tell us honey bees are not native to America there is no record of their importation. It is now believed that they were brought to this country by some of the early Franciscan Missionaries that came over with the Spanish Conquistadors. This theory is very plausible as it would furnish them not only their sweets but also wax for candle making, an important item in their church services. By the natural swarming trend such an importation would provide the necessary time for the bees to reach the western country where they were always found by the earliest settlers.

THE MAZON COURT CASE

A village ordinance that would have been a precedent which, if generally applied, would have strangled thousands of beekeeping interests the country over. It would have banned bees, equipment, honeyhouses, storage and honey packing plants in town limits.

In a case entitled Village of Mazon, Ray Mount and John Simpson, plaintiffs, vs. Gordon Bell, defendant, suit was brought before a justice of the peace in Morris, Illinois, for violation of the following provision of an ordinance of the village of Mazon, Illinois.

> "Section 2. That no person shall allow, permit or suffer any beehive, apiary or other facility or arrangement to be so located upon his property or that in his possession within said village so as to be within 250 feet of any occupied building or dwelling."

The defendant admitted that his apiary was located within 250 feet of a residence, and was found guilty by the justice of the peace, who levied a fine of $50.00. The defendant appealed to the Circuit Court of Grundy County, Illinois, and on January 9, 1959, there was a trial without a jury. In this entire trial and proceedings, Gordon Bell fought the case all alone. The implications of the ordinance are obvious. It would not have been possible to keep bees on the city property and possibly honey packing equipment such as: honey house, honey handling equipment, etc. which would have been a bad precedent for the entire industry.

The village attorney proved the violation of the ordinance by the testimony of John Simpson, one of the complainants, who lived on the lot directly west of and adjacent to the lot on which the bees were and whose home was within 250 feet of Mr. Bell's apiary. He testified that on July 12th a swarm of bees were in an apple tree on his property. He brought some gasoline from the garage and threw it on them and the bees chased him into his house. He said then he saw the bees leave his yard, circle in the air, and descend in the area in which Bell's bees were located. He also said that on two other dates he had seen swarms of bees in his yard. This was the only evidence offered to establish violation of the ordinance. There was no evidence of stinging or spotting or any other disturbance.

Mr. Bell's attorneys asked that the suit be dismissed because the evidence offered was insufficient to prove the defendant's bees constituted a nuisance and that it is not a nuisance in itself to keep bees within 250 feet of any occupied building. They argued that the village had no authority to pass an ordinance prohibiting keeping bees in the limits of the village unless it could be shown that they were a nuisance.

Therefore, the court dismissed the case, giving as its reason that keeping bees in the village limits was not in itself a nuisance and that the evidence offered was not enough to show that Gordon Bell's bees were a nuisance and that the village had no authority to pass the ordinance without proof that the defendant's bees did in fact constitute a nuisance.

The court stated further that if the village were to draft an ordinance prohibiting beekeeping in an unreasonable manner and if it could be proved that the defendant was keeping bees in an unreasonable manner, then the village might be able to enforce such an ordinance.

Root and Malmquist of Morris were attorneys for Mr. Bell. Dr. V. G. Milum, Apiculturist at the University of Illinois and well-known authority on beekeeping was present to testify for Mr. Bell but because the case was dismissed on the grounds that the village had not proved its case, it was not necessary to have Dr. Milum testify.

Exhibiting and Judging Honey and Beeswax

A publication from the Apiary Division, Plant Industry Branch of the Saskatchewan Department of Agriculture. Fourteen pages and self cover with five pictures. A uniform system of judging exists in Canada and this booklet explains the qualities that the judge considers when judging honey and beeswax and how these qualities may be obtained. The booklet is also a guide for those who may have to judge at local fairs.

Insecticides—

(continued from page 147)

if pesticides are applied every two or three weeks to the same crop on which bees are working, it is obvious that the working force will be held at a level below that of efficient or even economic production.

In one instance, that is typical of this type of evaluating bee losses, BHC was applied to a seed field of alfalfa in full bloom during the morning hours when bees were actively working the blossoms. An examination of the colonies two days later revealed the loss of approximately one-half of the colony populations. The owner of the bees was then operating in another state and did not examine his colonies until it was time to remove them from the field in the fall. He said that the colonies were apparently in fair condition but produced no surplus. Unaffected colonies in similar locations averaged approximately 60 pounds of honey per hive.

In another instance concerning colonies placed in a pear orchard, dieldrin was applied before bloom as a control of a leaf miner. Some colonies were killed outright while other colonies were reduced to only a few frames of bees. The colonies were knocked out of production for at least half the summer and had to be replaced for pollination purposes. A compromise settlement for the loss amounted to around $1,200, less than half of what the bees would have produced in a normal honey year.

Beekeepers should examine their colonies at sufficient intervals to know that they are in good condition at all times. They should also become acquainted with the pesticide programs connected with the various crops in the area in which their hives are located, and should not move into a territory where bees are likely to be injured seriously by pesticide applications. A rental should be charged for the use of all colonies for pollination purposes to cover expenses of moving, care of bees and occasional losses sustained. A grower will appreciate the value of bees more if he has money invested in their services. The beekeeper should also require notification in advance of the application of toxic substances to permit the removal of his colonies to less hazardous locations for the length of time the poisons remain toxic to his bees.

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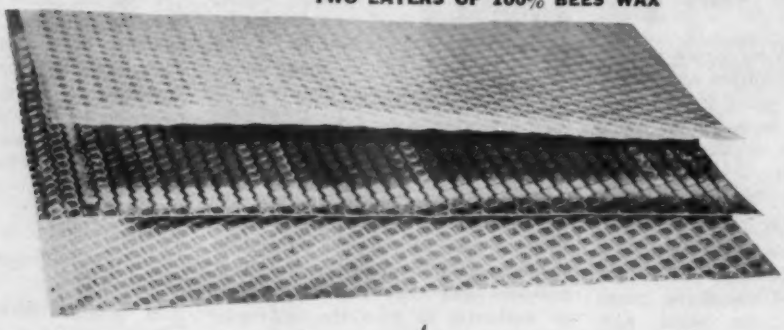

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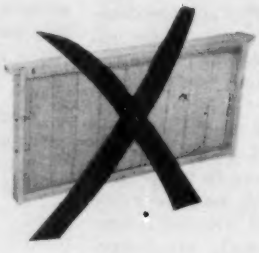

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SPRING and FALL QUEENS
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OLD STATION, SHASTA COUNTY
CALIFORNIA

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Order now for April Deliv.
2 lb. pkg. w/q.....$4.00
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Queen, mild Italian... 1.25
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Royal Jelly, cells, by contract.
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Good honey producing stock, gentle to work with. Full weight packages.
Health certificate and live arrival guaranteed.
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Caucasian or Italian Bees & Queens

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All queens postpaid, airmail. Health certificate and live arrival guaranteed.
HOLDER HOMAN
SHANNON MISS.

Gentle highly productive
CLOVERLINE CAUCASIANS

Hardy vigorous 3 banded
CLOVERLINE ITALIANS

1959 PRICES

Choice of ITALIANS or CAUCASIANS

Quantity	Queens only	2 lb. Package with queen	3 lb. Package with queen	4 lb. Package with queen	5 lb. Package with queen
1-9	$ 1.70	$ 4.50	$ 5.50	$ 6.50	$ 7.50
10-49	1.60	4.00	5.00	6.00	7.00
50-99	1.55	3.85	4.85	5.85	6.85
100 and over	1.50	3.75	4.75	5.75	6.75

We sell GOOD BEES specifically developed for heavy honey production, one grade only, CROSS BRED CLOVERLINES.

We have no disease and all our apiaries are government inspected. Certificate of Health and Directions for Handling come with every shipment. Live delivery and complete satisfaction guaranteed. Your choice of shipment via Express Collect, Parcel Post or your truck.

If Parcel Post is desired, please include sufficient remittance to cover postage and required special handling. For exact postal charges, see our ad in the February issue of this journal or upon receipt of your order we will advise the exact amount required.

Shipping Season from April 1st to May 20th

Cloverline Apiaries are one of the largest independent honey producers in the U. S., and the bees and queens that we sell are the same as we ourselves use. Cloverline packages are produced and shipped to the rigid specifications required for intensive and successful heavy commercial production.

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GOLDEN ITALIAN QUEENS. Bees very large and gentle. Heavy honey producers. $1.00 each. Guaranteed live arrival and health certificate. Allen H. Gauthier, Hamburg, La.

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QUEEN BEES 1959. Walker, Rt. 2, Box 338, Vacaville, California.

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BRIGHT ITALIANS 3 lb. with queen, $4.90; 2 lb. with queen, $4.25; f.o.b. Queens $1.25, P.P. Sheppard Apiaries, Aberdeen, N. C.

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CARNIOLAN QUEENS $1.00 each. Leo Wardell, Route 6, Palestine, Texas.

THE GOLDEN APIARIES Italian bees-3 lbs. with untested queens, $4.20 each; 4 lbs. with untested queen, $5.00 each. Queenless packages, deduct 80c per package. Live delivery and a health certificate with shipment. Maurice Roy, Hessmer, Louisiana.

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UNUSUAL OPPORTUNITY—Selling because of health. 10-frame equipment for over 1300 colonies excellent condition. Includes complete extracting plant with or without honey house and bee locations. Cash or terms. Write to RS c/o American Bee Journal.

Copy for the department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising — 10 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

SAVE, BUY DIRECT from factory white pine supers standard dovetail construction 9-5/8" depth $1.20 6-5/8" depth 95c quantity discount. Kehm Bros. Apiaries, Airport Bldg. T-112 Mailing address, 222 East 7th, Grand Island, Nebraska.

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HUNDREDS OF 10 frame hive bodies with frames $1.25. Also telescoping metal covered lids, bottoms, inner covers and shallow supers. C. L. Auerbach, Iola, Kansas.

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JUNIOR SIZE Brand Cappings Melter, galvanized tank, in good condition. $40.00 Sperry Bros., Lawrence, Kansas.

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WE CAN SUPPLY NICE white honey. Immediate delivery. Russell Smalley. Beaver, Iowa.

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WANT CARLOAD or truck loads of water white, white, and amber honey. Also sage honey. Mail samples and quote. Maxwell's, Berryville, Virginia.

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WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Mich.

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WRITE FOR CATALOGUE. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Mich.

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WANTED - Experienced or inexperienced man for Louisiana and South Dakota. Lionel Hopkins, Maringouin, La.

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LET US explain our Finance Plan for Package Bees and Supplies, including Hooked Wired Foundation. Hubbard Apiaries, Onsted, Michigan.

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1958 edition our 112 page book *HOW TO KEEP BEES AND SELL HONEY* CONTAINS OVER 175 CLEAR, SHARP PICTURES, EXPLAINS IN EASY TO READ STYLE ALL YOU NEED TO KNOW TO MAKE BEEKEEPING PLEASANT AND PROFITABLE. INCLUDES HITHERTO SECRET INFORMATION ON HOW TO BUILD HOT ROOMS TO LIQUEFY HONEY OVER NIGHT, HOW TO PREPARE WAX FOR MARKET AND FAIR DISPLAYS AND HOW TO MAKE CREAMED HONEY. 75c postpaid. Walter T. Kelley Co., Clarkson, Kentucky.

FOR LEASE - 1,000 colonies bees on share basis, 7,000 boxes, complete extraction equipment and trucks. Box JH, c/o American Bee Journal.

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REWARD FOR information of a truck driver selling 9 cans of white granulated honey off a semi truck Feb. 26 or 27 between Princeville, Illinois and Michigan. Ray Johnson, Princeville, Illinois.

"Bee Wise — Woodmanise Your Bee Supplies"

A. G. Woodman Co. Grand Rapids 4, Mich.

(Send for catalog—350 Listings)

ITALIAN BEES AND QUEENS
2 lbs. with queen.....$3.75
3 lbs. with queen.....$4.75
Extra queens.....$1.20
I will try to give you satisfactory service and bees.
RAYMOND McFARLING
Rt. 3 Tupelo, Mississippi

FREE...
A Sample Copy
"Gleanings in Bee Culture"
Look it Over — You Will Like It
A. I. ROOT CO., Medina, Ohio

GOLDEN ITALIAN QUEENS
1-9 $1.25 10 or more $1.10
3 Frame Nuclei w/q. $4.50 each
Frames Exchanged
HIGNITE BEE FARMS
230 S. Lynchburg Rd. Baytown, Texas

—Crop and Market—

by M. G. Dadant

MOISTURE

The whole east half of the country seems to have fared quite well as to moisture for honey plants although, there was in most cases a deficiency in early fall. The winter snows and rains, however, have overcome this and conditions are quite satisfactory. This condition also can be reported over the Central West. Strangely enough there is a belt running throughout northern Wisconsin, northern Minnesota, the Dakotas and into eastern Montana as well as the Canadian prairie provinces where the amount of moisture has been insufficient both last fall and during the winter. This in spite of the fact that we have reported extremely heavy snows in most northern areas.

The prairie states seem to be in quite good condition for moisture and this extends down into Texas and Arkansas.

About average moisture can be reported for the intermountain country and plentiful moisture in Washington and Oregon.

California has had late rains which have helped a great deal in moisture but there is little likelihood that moisture conditions will be as extremely favorable as a year ago for the desert areas. In fact we would consider from reports that there is a deficiency of moisture. This also applies to Arizona and New Mexico.

HONEY PLANTS

Although, honey plants were not helped any by the relatively dry autumn conditions we can report that honey plants are generally throughout the central and the eastern areas quite satisfactory owing to rains and heavy snowfall much of which fell on relatively unfrozen ground.

The disastrous freeze of a year ago in Florida has resulted in a deficiency in early bloom with the citrus fruits, although, perhaps this will be made up by a later bloom in May and June. The wet conditions in southern areas bodes well for all honey plants.

Desert areas of the extreme west are quite deficient in moisture and it is problematical what the possibilities for a crop may be.

CONDITION OF BEES

We believe that bees have wintered perhaps somewhat under normal largely due to the fact that the winter clusters were not as large as they should have been last fall owing to a relatively light fall crop to put the bees in the right condition for late brood rearing.

Added to this there has been a rather continuous cold winter which has called upon the energy of the clusters and when these were small to start with in many instances they have succumbed. We believe that in northern areas the losses will be larger than a year ago and perhaps many colonies will be inclined to dwindle as the spring season advances.

This can be applied to all northern areas and into the Canadian provinces. On the West Coast we believe that perhaps conditions are better than average, in other sections a little less promising than average. Some bees need feeding. The condition of bees as reported above has its effect on the amount of feeding that will be necessary. Where colonies were strong enough in number to carry through the continued cold winter it meant the using of excessive stores and we would warn our readers in all cases to look at their colonies just as early as they can to make sure that the stores are on hand for the spring breeding season. In our opinion it will be more necessary than ever this year, although generally California, and in southern areas the honey plants, if there is not too great an amount of bad weather, may take care of the colonies satisfactorily through the early breeding season and until the heavier crops appear.

Almost in all sections the prospects for 1959 are reported as good or better than a year ago and perhaps better than average. This does not apply to the northern areas previously reported as being short of moisture nor does it apply to the desert areas of the far West where very abnormal conditions existed last year and as a result there was a heavy crop of sage and other desert flowers. All in all, however, we believe that prospects throughout the country are the equal or better than last year with the likelihood that the very heavy producers, for instance California and the Dakotas, may fall short of their 1958 crop. The prospects in the western Canadian provinces do not look as good as a year ago but are improved in Ontario and Quebec owing to desirable moisture and plant conditions.

Government report as of February 28, 1959, shows a total of some 5 million pounds under loan and additional 11½ million pounds covered by purchase agreements. This makes a total of some 17 million pounds, whereas, under the same date in 1958 the total amounted to in the neighborhood of 4 million pounds and in the year 1956 only 2 million pounds.

I think that we can safely say that the difference between the 1958 and 1959 picture amounts to about what the difference was between 1957 and 1958 crops.

The demand has sustained itself very well and buyers have had to replenish to take care of their trade. There may be a problem, however, of how to get rid of the excess of some 10 to 15 million pounds gathered in 1958 over the crops of 1957.

From present conditions it does look like perhaps the 1959 crop in those heavy producing areas may not be anything like the equal of 1958 and as a result perhaps the beekeeper or honey packers, who has been able to maintain without sacrificing, may be able to cash in on the carry over.

In any case it does seem like the picture for 1959 represents itself better for the country as a whole but likely this is overcome somewhat by a reduced possibility for the heavier producing areas which carried the big crop in 1958.

"Honey Bees in Crop Pollination"

An eight page, top-folded, leaflet of the California Experiment Station Extension Service, by Dr. J. E. Eckert, issued in January. Covers the necessity for pollinators, colony requirements for various crops - orchards, small fruits and vegetables, field crops, legume seed production - alfalfa, Ladino clover, alsike, and trefoil. Colony requirements and placement, protection from pesticides, contracts.

AIRPLANE-Quality — SUBMARINE-Prices for 1959

WE HAVE TO OFFER YOU—YOUNG HIGHEST PRIME QUALITY PACKAGE BEES AND QUEENS
(Liberal overweight)

THE IMPROVED STRAIN of three-banded Italians, backed by over 35 years' careful selecting, breeding, and shipping to all points in U. S. A. and Canada. Each year our breeding and mating stock is carefully picked and tested out for the coming season from hundreds of best by test colonies, which gives you benefit of each season's improvement when buying from us.

We are booking orders for the season of 1959, plan your requirements for this season and place your orders early. We are booking each day from now on to fill your orders promptly on the day you want them with the very best of QUALITY BY TEST. Let us know your 1959 requirements. We guarantee to please you in every respect or money cheerfully refunded. Shipment guaranteed on date you desire. We can take care of your rush orders from March 15th on. No disease. Health certificate with each shipment.

Orders booked 25% down payment to confirm, balance due 10 days before shipment.

	Queens	2-Lb. Pkg. with Queen	3-Lb. Pkg. with Queen
1 - 24	$1.25	$4.00	$5.00
25 - 99	1.15	3.75	4.75
100 up	1.00	3.50	4.50

Royal Jelly A Specialty — Aides human health in many ways — write for special information and prices.
Reference: Bank of Cottonwood, Cottonwood, Ala.

H. A. FARMER APIARIES : Cottonwood, Ala.

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THE WALTER T. KELLEY CO., Clarkson, Kentucky

Harper's Famous
High Quality Italian
QUEENS AND PACKAGE BEES

Queens	2 lb. w/q.	3 lb. w/q.
1 - 29 $1.25	$4.00	$5.00
30 & up 1.15	3.75	4.75

Please let us have your requirements now. We still have some open shipping dates for first part of April also latter part. Live arrival and Health certificate guaranteed.

Carlus T. Harper
New Brockton Ala.

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Frame Spacers

The Finest Thing Offered Beekeepers

What beautiful even combs to uncap and labor saved are continued reports of perfectly spaced combs.

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LATTY, OHIO

Dadants' Midnite Hybrids

2 lb. packages	$4.80
3 lb. packages	6.00
4 lb. packages	7.20

Queens—$1.75 each - add 10c for marking and clipping

CARNIOLANS & CAUCASIANS

2 lb. packages	$4.50
3 lb. packages	5.70
4 lb. packages	6.90

Queens $1.40 each

J. L. O'Ferrell & Sons
409 O'Ferrell St. Greensboro, N. Car.
and La Belle, Fla.

ITALIAN QUEENS AND PACKAGES

All queens are No. 1 quality of our own breeding.
Prompt, efficient service.

	1 to 10	11 to 50	51-up
2-lb. pkg. with queen	$4.50	$4.25	$4.00
3-lb. pkg. with queen	5.70	5.45	5.20
4 lb. pkg. with queen	6.90	6.65	6.40
5-lb. pkg. with queen	8.10	7.85	7.60
Queens	1.45	1.35	1.25
Tested Queens	2.50		

Our Express rates and schedules remain unchanged from last year.

W. E. PLANT **Hattiesburg, Mississippi**

Italian Bees and Queens

Dadant's Starline —	1 to 25	Our Regular Stock 25 to 100	100 up
2 lb. package with queen	$4.50	$4.25	$4.00
3 lb. package with queen	5.70	5.45	5.20

For larger packages add $1.10 per pound. P. P. Packages add $1.50 per pkg.

Untested queens	1.45	1.35	1.25
Tested queens	2.50		

The prices are for regular stock, so add 30c per package or queen for Dadant's Starline. The stock that makes the honey and very gentle.

Royal Jelly shipped anywhere. Write for prices.
Shipping of bees and queens now. Satisfaction Guaranteed.

Alamance Bee Company

Geo. E. Curtis & Sons La Belle, Fla. Box 525

CALIFORNIA CAUCASIANS

Gentle and Industrious Caucasian queens. Hastings strain used for breeders. Bred for greater honey production, Gentleness, Highly prolific, No excessive propolis, Swarm control and Color. Some package bees. 10% books your order - balance due two weeks prior to shipment. Air Mail. Ready to ship about April 1. Wo do not clip or mark.

1 to 24	$1.50
25 to 99	1.35
100 and up	1.20

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Don J. Strachan **Yuba City, Calif.**

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Three Banded Italians

Plenty of early bees now ready for shipment. Order direct from this ad. Your order will be filled promptly.

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1 to 24	$1.40	$4.25	$5.35
25 to 100	1.15	3.75	4.75

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YELLOW ITALIAN BEES AND QUEENS

2 lb. bees with queen $3.50; 3 lb. bees with queen $4.50; Queens $1.00 ea.
Dadant's Starline Hybrid Queens—
1 to 24 $1.70 ea.; 25 to 99 $1.60 ea.; 100 and above $1.50 ea.

We guarantee live arrival and health certificate.

ALVIN J. DUCOTE **Hamburg, Louisiana**

HIGH QUALITY

Italian Queens and Package Bees - Now Ready

Improved 3-band Italian Bees and Queens from top honey producing hives. Prompt service, safe arrival and satisfaction guaranteed.

Untested Queens	$1.00
Tested Queens	2.00
2 lb. pkg. with Q.	3.50
3 lb. pkg. with Q.	4.50

Packages shipped F.O.B. express; via parcel post postage collect.

NORMAN BEE CO.

A. D. Norman and Sons, Owners
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25 cents for 8 - 9 oz.

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P.O. Box 214 Dearborn 1, Mich.

Italian Bees and Queens

2 lb. pkg. w/q.—$3.50; 3 lb. pkg. w/q.—$4.25; 4 lb. pkg. w/q.—$5.20; 5 lb. pkg. w/q.—$6.25. Extra Queens—$1.15 each. Live delivery guaranteed and health certificate with each shipment.

10% books your order

GASPARD BEE CO.

HESSMER LA.

Italian QUEENS BEES

Large, Vigorous Queens
Overweight Packages
Shipped on time.

2-lb. pkg. w/q.	$3.75 F.O.B. express
3-lb. pkg. w/q.	4.75 F.O.B. express
Queens	1.20 pp

If packages wanted by parcel post, add $1.25 for the 2 lb. and $1.50 for 3 lb. pkgs.

Sunrise Apiaries

Petal Mississippi

"Originators of Frame-Grips"
Send now to McCORD MFG. CO.
Rt. 2, Box 866, San Jose, Calif.

Positive Grip Through the Leverage Action of This Strong Aluminum Frame-Grip.

Plus 32c postage fee.

Deluxe	2.75
Utility	2.45

Also obtainable from your leading Bee Dealer. Don't accept a substitute.

NOW READY

First Quality

Italian Bees and Queens

2 lb. Pkgs. w/q.	$3.75 any number
3 lb. Pkgs. w/q.	4.75 any number
Untested queens	1.10 any number
Tested queens	1.50 any number
For larger pkgs. add	1.00 per lb.

Terms $1.00 per package with orders balance before shipments.

Our 100% Satisfaction has been good for 47 years. Let us prove it.

MERRILL BEE COMPANY

State Line Miss.

SPEARS APIARIES

Simmesport, Louisiana

Italian and workers that are quiet, pleasing to the eye, and industrious.

2 lb. pkgs. w/q.....$3.50
3 lb. pkgs. w/q..... 4.50

Live delivery guaranteed - Satisfaction assured

Italian Bees and Queens

Oregon-bred Select Stock

3 lb. w/q. $5.10 2 lb. w/q. $4.10
Queens $1.40 Quantity Discounts
Nuclei Made Up In Your Hives

HERMAN LARSEN

JUNCTION CITY, ORE. Ph. WY 8-2771

QUALITY ONLY

Prompt Service

Postage Prepaid Prices:

	1 - 24	25 - 99	100 up
Italian Queens	$1.30	$1.25	$1.20
Starlines	1.70	1.60	1.50

FRANK G. STEWART

Phone: FRanklin 8-2462
Millville California

SELECT ITALIANS

Package Beees

Queens

Write For Price

JOE PENCIN

SKYLINE 3-5148 BOX 517 DAVIS, CALIF.

THRIFTY BEES

Combless packages and queens. Three-banded Italians only. Remember—Thrifty Bees are guaranteed to please.

Write for prices.

W. J. FOREHAND & SONS
Fort Deposit, Ala.
Breeders since 1892

QUALITY ITALIANS

2 lb. with queen.....$3.25
3 lb. with queen..... 4.25
Extra Queens Air Mail 1.00

WILKES APIARIES

BOX 206 PHONE 2411
HAMBURG LOUISIANA

PRODUCE MORE HONEY with Dadant Starline Hybrid Queens and and Garon's Better Quality Italians

	QUEENS Starlines	Italians	Package Bees with Queens 2 lbs.	3 lbs.	4 lbs.
1 - 24	$1.70	$1.30	$4.05	$5.05	$6.05
25 - 99	$1.60	1.25	3.95	4.95	5.95
100 up	1.50	1.20	3.85	4.85	5.85

For packages with Dadant Starline Hybrid queens add 30c extra per pkg. Queens clipped or painted at 5c each operation.

GARON BEE COMPANY **Donaldsonville, La.**

BOOK THOSE GOOD WEAVER

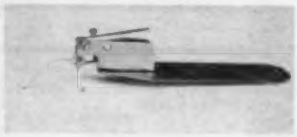
Italian Queens and Packages Now

Prices	Extra Queens	2 lb. w/q	3 lb. w/q
1 to 11	$1.40	$4.50	$5.50
12 to 49	1.30	4.25	5.25
50 to 199	1.25	4.00	5.00
200 and up	1.25	3.75	4.75

If you wish queens clipped or painted add 5c each

Quality and Service Book NOW

Weaver Apiaries **Navasota, Texas**



Use the
MASTER Queen Grafting Tool
for fast, easy and accurate transferring.
$3.60 ea. including extra rustless tongue.
Your Dealer stocks them.

HUTCHISON MFG. CO.
2904 Colorado Ave. Santa Monica, Calif.

ONE RACE ONLY - NO PACKAGES - **QUEENS OF QUALITY** - Book Early.
Dadant Starline Hybrid Queens—$1.70 each. Write for quantity prices.
Clipped and marked upon request 5c each extra. Personal service.
35 years experience **S. J. HEAD** **Crossett, Arkansas**

PACKAGE BEES	*ITALIAN* 1 - 24	25 - 49	QUEENS 50 & up
2 lb. with queen	$4.10	$3.85	$3.75
3 lb. with queen	5.10	4.85	4.75
3 lb. with 2 queens	6.35	6.10	6.00

F.O.B. Sacramento, Calif. or your truck

Truck orders a specialty — Write for details

JOHN S. SHACKELFORD **Rio Oso, Calif.**

20 years a shipper of choice BEES

QUEENS OF QUALITY MEAN PACKAGES THAT PRODUCE

		1 - 9	10 - 49	
	2 lb. w/q	$3.60	$3.40	Parcel
Express	3 lb. w/q	4.80	4.60	Post
	Queens	1.20	1.00	

Small orders cash. Large orders $1.00 deposit per package

HONEY BOWL APIARIES Box 574 Bunkie, La.

Queens

STARLINES

Packages

Booking Orders Now
For 1959 Season.

SUNKIST BEE CO.

Convent Louisiana

Hollopeter's Italian Queens
Hardy, Northern-bred Stock
WHITE PINE BEE FARMS
Box 800 Rockton, Pa.

ITALIAN BEES AND QUEENS
for the Spring of 1959
3 lbs. w/q. $4.10 4 lbs. w/q. $5.00
Health Certificate with each order.
Full weight and live delivery guaranteed. 10% down.
Phone Marksville 2449
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ADOLPH GUILLORY
Hessmer Louisiana

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is the Beekeeper
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CONNEAUT
60 LB. CANS
Sold By Leading Dealers
THE CONNEAUT CAN CO.
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PACKAGE BEES
ITALIAN QUEENS
Good Producers — Gentle
You Will Like Them.
A. R. BANTA
Los Molinos Calif.

WILLIAMS ITALIAN QUEENS
Large Leather-Colored Three-Banded
QUALITY SUPREME
Certificate with each shipment
1-9 Air Mail ..... 1.25 each
10-99 Air Mail ..... 1.15 each
100 Up Air Mail ..... 1.05 each
DR. WILLIAMS APIARIES
115 W. Sterling St. Baytown, Texas

ITALIAN BEES & QUEENS
Now Booking Orders
Gold Leaf Apiaries
Hahira Ga.

JENSEN'S

Package Bees and Queens

	Packages with Dadant "Starline" Hybrid Queens:			Packages with Jensen's "Magnolia State" Italian Queens:		
	1 - 24	25 - 99	100-up	1 - 24	25 - 99	100-up
2 Lb.	$4.80	$4.55	$4.30	$4.50	$4.25	$4.00
3 Lb.	5.90	5.65	5.40	5.60	5.35	5.10
4 Lb.	7.00	6.75	6.50	6.70	6.45	6.20
	Starline		—QUEENS—	Magnolia		
	$1.75	$1.65	$1.55	$1.45	$1.35	$1.25

Clipped and Marked 10c Each. Air Mail Postage Paid.

MACON, MISSISSIPPI

DADANT STARLINES

Package Bee and Queen Prices For 1959

	1 - 24	25 - 99	100 up
2 lbs. with Starline Queen	$4.55	$4.30	$4.05
3 lbs. with Starline Queen	5.65	5.40	5.15
Starline Queens	1.75	1.65	1.55

Queens clipped and marked 10c each additional
For regular stock queens deduct 30c from each of the above figures.
Packages are priced F.O.B. Orland, Calif.
Queens are prepaid airmail if faster — Shipping starts April 1

C. G. WENNER **Glenn, California**

Rt. 1 Box 318 Phone Willows - Wellington 4-4944

CAUCASIAN OR ITALIAN PACKAGE BEES AND QUEENS

Proven for honey production, easy handling. Health certificate, live arrival guaranteed and top quality.

Lots of	Queens	— PRICES — 2 lb. & Q.	3 lb. & Q.	4 lb. & Q.	5 lb. & Q.
1 - 24	$1.50	$4.25	$5.35	$6.45	$7.55
25 - 99	1.35	4.00	5.05	6.10	7.15
100 up	1.20	3.75	4.75	5.75	6.75

Ship via Express or Parcel Post

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AMERICAN BEE JOURNAL

Hamilton, Illinois

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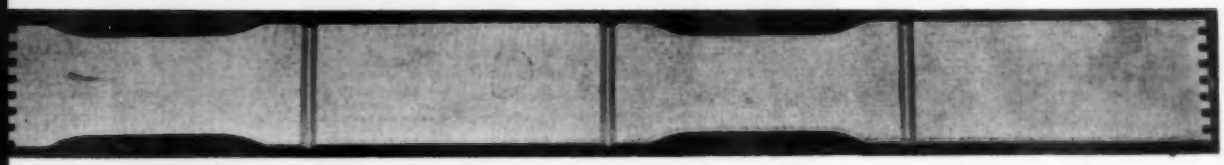
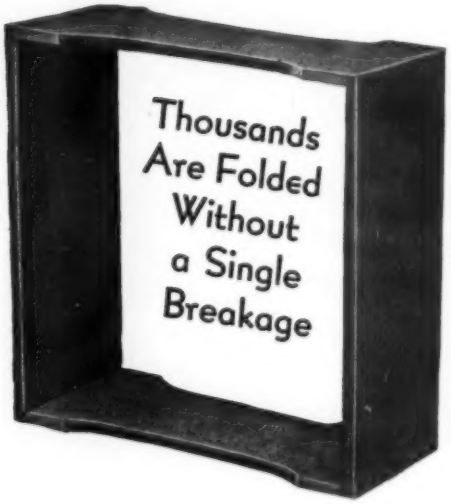


. . . but you can't use them until they have been folded and dovetailed.

To be sure you can use more of the sections you buy - get only Root Quality rounded V-groove sections. The rounded groove makes the section far more resistant to breakage than ordinary sections.

Other plus benefits you get from using Root sections are proper moisture content, dovetailed corners that fit tight, beautifully polished white basswood lumber, and a uniform thickness. All combine to give you a more profitable finished product.

For more details visit the friendly Root dealer nearest you or write to one of the outlets listed below.



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DEALERS EVERYWHERE

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Roy A. Grout, Chief Chemist and Plant Manager, checking production samples

Guarantees that ALL DADANT'S FOUNDATIONS ARE MADE FROM 100% PURE BEESWAX

If you are not now using Dadant's Foundations, we suggest that you give them a Try. Each of the five outstanding types gives you assurance of the finest combs, the very best in honey production.

Always available at your nearest Dadant Dealer's; or at any of our seven conveniently located distribution points.

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